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Photo by A. O. Gross

CAPTIVE SNOWY OWLS—NOVEMBER 21, 1926.

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THE SNOWY OWL MIGRATION OF 1926-27.

BY ALFRED O. GROSS.

Plates XXII-XXVII

THE Snowy Owl regularly migrates from its breeding range in the "Barrens" of North America to the southern provinces, especially of middle west Canada, but at more or less regular intervals the migration extends much farther southward including an area well into the United States. The most notable of these exceptional flights which have occurred during the past fifty years took place in 1876-77,¹ 1882-83, 1889-90, 1892-93, 1896-97, 1901-02, 1905-06, 1917-18 and the present one 1926-27. A few Snowy Owls have found their way into the United States nearly every year but they were not accompanied by a general migration except in the years indicated above.

The cause of these great invasions from the north is not clearly understood and constitutes a problem which deserves the serious attention of ornithologists. Food, apparently, is one factor involved in causing these movements, whereas weather conditions in the north are probably of minor importance. The amount of snow may have an indirect bearing since it involves the accessibility of the food supply of the Owls. With the accumulation of more data concerning the life of the far north we may be able to correlate the periodic migrations of Snowy Owls with cycles of

¹ Deane, R. 1872. Bull. Nutt. Ornith. Club, vol. 2, p. 9.

1902. Auk, vol. 19, p. 271.

1906. Auk, vol. 23, p. 101.

1907. Auk, vol. 24, p. 217.

abundance of certain animals such as hares, rabbits and lemmings, the chief food of these birds. According to reports received from the Hudson Bay Company there was an unusual number of rabbits in the north in 1925 whereas they were exceedingly scarce during the latter part of 1926. In Baffinland there was an abundance of lemmings in 1925 but as yet we have no reports concerning the abundance of these rodents in that region in 1926. Reports from Alaska and northwestern Canada state the rabbits were common there in 1925 but were almost exterminated in certain regions by disease in 1926. It would be interesting to know just what part disease played in curtailing the food supply of the Owls as a whole. An abundance of food in 1925 would serve to bring about a successful breeding season for the Owls which in all probability would lead to an overproduction. When the food became scarce or difficult to obtain because of excessive snows in 1926 the surplus Owls were forced to range far and wide to secure a living. Disease by further reducing the numbers of rabbits and possibly other rodents would thus serve to aid in causing this great migration into northeastern United States.

When the Snowy Owls and Goshawks first appeared in New England in the fall of 1926 the New England Ruffed Grouse Investigation under the auspices of the Massachusetts Fish and Game Protective Association, turned its attention to the flight in an effort to determine the effect of this migration on the game birds especially the Ruffed Grouse. The committee enlisted the aid of sportsmen who were interested in the problem and the various New England State Departments of Conservation volunteered to send in all information which they received concerning these visitors from the north. Mr. Thornton Burgess broadcasting our wants from radio station WBZ Springfield, Mass. received numerous reports and newspaper clippings from all parts of the range of migration especially New England. Dr. Witmer Stone through 'The Auk' called the attention of the members of the A. O. U. to the importance of obtaining records of the occurrence of the Snowy Owls and other species from the north. He also, very obligingly agreed to combine his records with those received by the Ruffed Grouse Investigation for a general report. We wish to acknowledge the assistance given to

us by numerous contributors. We are especially indebted to Mr. Ruthven Deane of Chicago who gave us all of his records and correspondence received in answer to numerous requests for information sent to light house stations, taxidermists and ornithologists. Mr. Edward H. Forbush, State Ornithologist of Massachusetts, permitted us to make use of the records and reports of Snowy Owls and Goshawks contained in his voluminous correspondence. Dr. Arthur A. Allen of Cornell University sent us his personal records and a copy of all the reports of these birds, received through a questionnaire sent out by the general Ruffed Grouse Investigation Committee. Mr. Josselyn VanTyne and other members of the staff of the University of Michigan Museum were chiefly responsible for the accumulation of the numerous Michigan records. Mr. H. F. Witherby, editor 'British Birds', contributed many of the records of Snowy Owls observed on ships at sea. Of the many taxidermists who contributed records, Angell and Cash of Providence, Rhode Island deserve special mention for their excellent report which contained not only dates and localities of the 135 Owls received but also detailed determinations of the stomach contents. It is impracticable to mention all the individual reports and records in this paper and we shall attempt to give merely a general summary of the 1926-27 Snowy Owl migration. We hope this report will assist the reader in visualizing the extent and distribution of the flight and trust that it will be helpful in making comparisons with similar migrations which occurred in the past and with others which may take place in the future.

The one regrettable thing concerning this migration is the reception the birds received. The number of these beautiful and interesting birds which were killed is appalling. They came at a time when there was a maximum number of gunners in the field and every Owl that appeared seemed to be an invitation to shoot. There are few hunters in the far north and hence the Owls especially the young birds which were in the majority, had but little fear of man. Their habit of feeding in the open also made them conspicuous and easy targets. Many hunters killed them thinking it their duty to protect the game birds but too often the Owls were killed merely to satisfy a desire to kill or a

curiosity to examine the strange bird at close range. A large number of the Owls were thrown aside and wasted and of course were never reported. From estimates made of conditions in Maine and from reports received from elsewhere I feel that 5,000 is a conservative estimate of the number of Snowy Owls killed in the United States and Canada during the 1926-27 flight. It would be most interesting to know how many Snowy Owls succeeded in returning to the northland to breed after having passed this gauntlet of fire arms on their visit to civilized America.

THE EXTENT OF THE MIGRATION.

Canada.

Most of the correspondence received from Canadian observers was of a very general nature and comparatively few reports included records of dates and localities of the birds killed and observed. Therefore tabulations of the numbers for the different provinces would be of little value for comparative purposes. The general reports from Canada, however, are excellent and have enabled us to trace very well the extent and volume of the migration in that part of the continent.

No Snowy Owls were reported from British Columbia although Goshawks were much above their normal numbers throughout that province. In Alberta the Snowy Owls, according to Frank L. Farley, are generally present in constant numbers each winter and the past year (1926-27) has not been an exception. He states the Goshawks were unusually common. As we go eastward we have a report from Mr. C. L. Broley of Winnipeg who states that there were many Snowy Owls in Manitoba. Mr. C. G. Harrold also of Winnipeg writing January 9, 1927 states that there was a marked Snowy Owl migration in the fall but later the birds seemed to have moved elsewhere. Continuing on to the east in our cross section of the migration in southern Canada we have numerous general reports indicating a very unusual flight throughout Ontario and Quebec. Harrison F. Lewis of Ottawa, states that twenty-six taxidermists in the Province of Ontario received 517 Snowy Owls and twelve taxidermists in the Province of Quebec received 271 specimens. Mr. Lewis estimates that 1500 Snowy Owls



SHADED AREA SHOWS THE EXTENT AND DENSITY OF THE SNOWY OWL MIGRATION OF 1926-27. CROSS-HATCHED AREA THE APPROXIMATE BREEDING RANGE.



were killed in these two provinces alone which gives us a vivid impression of the magnitude of the migration in that region which is in the direct line of flight from the breeding grounds to the Great Lakes and southeastward to the New England coast line, the center of the present migration. The migration was general in the eastern sections of Canada through New Brunswick and Nova Scotia to Newfoundland. In New Brunswick the Owls were abundant on the islands lying off the southern coast. They were especially abundant on the island of Grand Manan and at Machias Seal Island the keeper of the light house station saw sixty of the Owls and killed twenty-four of them. Mr. Harry Piers of the Provincial Museum, Nova Scotia, reports a large number about Halifax and states there was an abnormally large flight. Mr. J. L. DeVany of Annapolis Royal, and W. Tufts of Wolfville, also state that there was a very large migration of Snowy Owls throughout the province. Mr. DeVany incidently mentions a Crow rookery which was completely devastated when the Owls first arrived in that region. We have no reports from stations in Labrador but birds were known to have come aboard ships when off that coast.

Mr. Arthur English of Doyles Station, located near the Great Codroy river in southwestern Newfoundland, writes that the Owls were plentiful particularly near the sea on the east and west coasts of the Island. The Owls, according to Mr. English, had passed on by December 25 the last having been seen a week before at Cape Ray the extreme southwestern point of Newfoundland.

From these reports we can roughly picture the movement of the Owls through Canada. There were no Owls beyond the Canadian Rockies in southern British Columbia. Owls were reported throughout the region between the mountains and the lakes in Manitoba but in this region the migration was not above normal. In Manitoba there is an indication of a greatly increased migration which reaches its maximum as we pass into the provinces of Ontario and Quebec. The migration was marked in New Brunswick and Nova Scotia but diminished somewhat in volume as we go to the coast of Labrador and Newfoundland.

United States.

We have received 2,363 records of Snowy Owls within the borders of the United States which are distributed by states as follows:

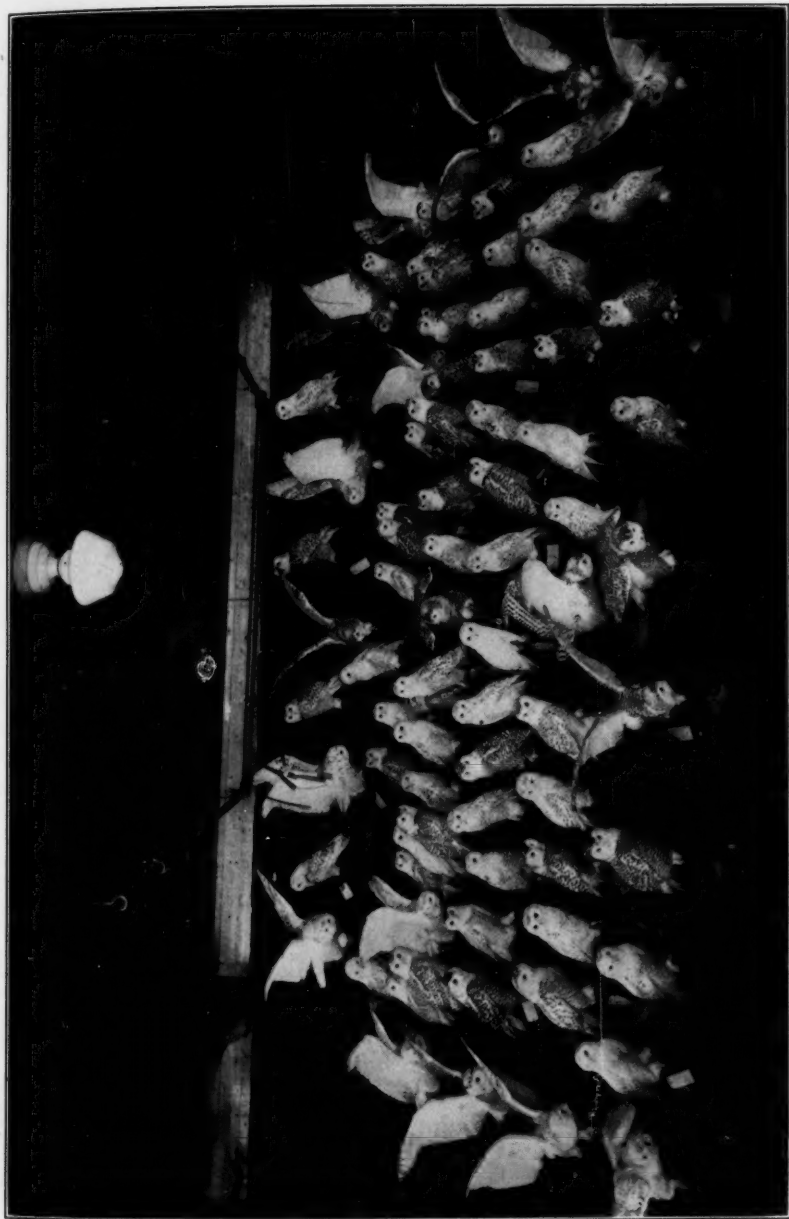
Michigan	592	Virginia	9
Maine	589	New Hampshire	8
New York	495	Vermont	5
Massachusetts	294	Iowa	3
Minnesota	103	Wisconsin	3
Rhode Island	96	North Carolina	3
Ohio ¹	60	Indiana	2
Connecticut	58	North Dakota	1
New Jersey	15	Illinois	1
Pennsylvania ¹	13	West Virginia	1
Maryland ²	12		

The above records though large in number probably represent but a very small fraction of all of the Snowy Owls which visited the United States during the migration of 1926-27, but it is reasonable to suppose that our records are fairly representative of the distribution.

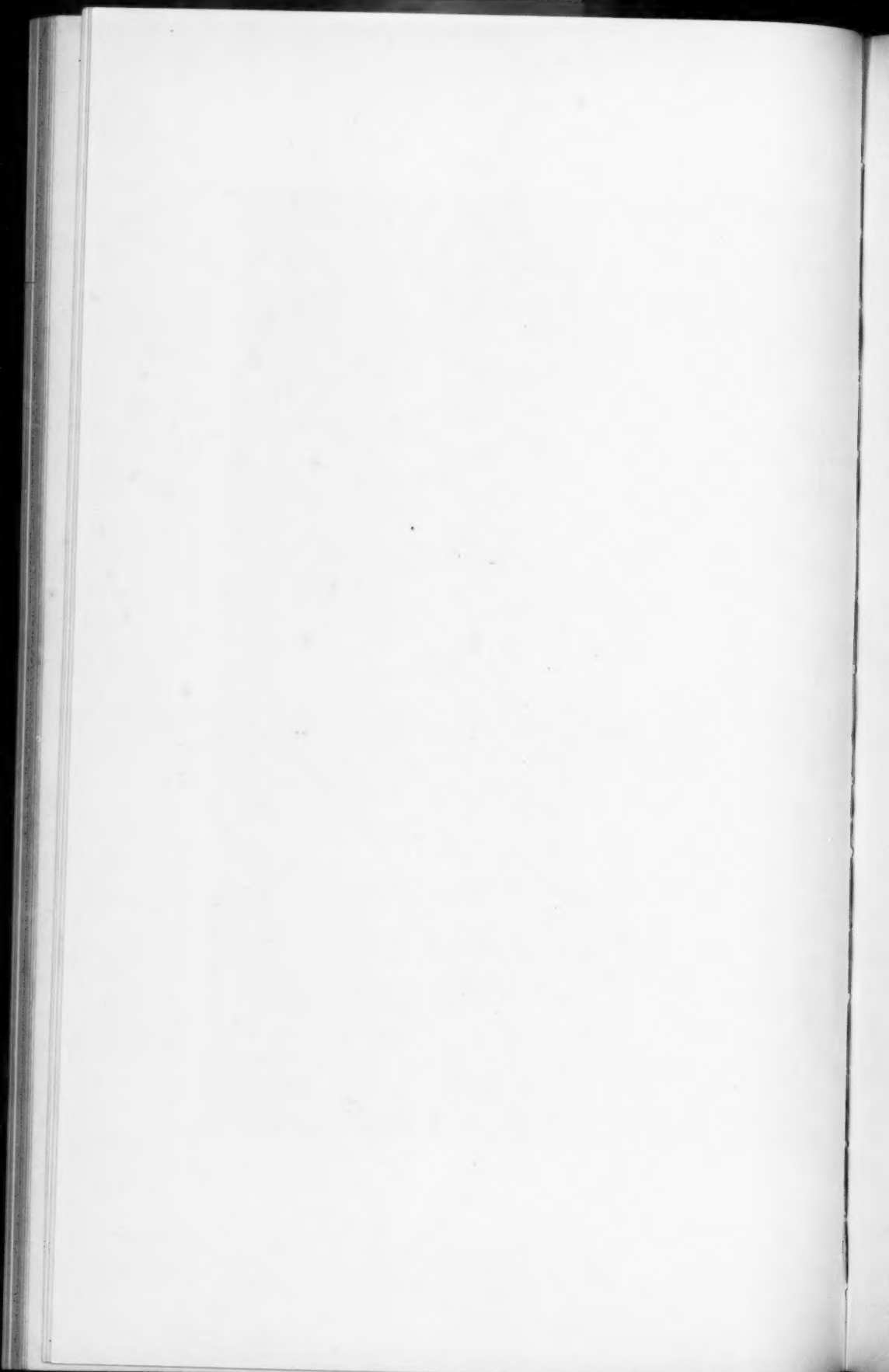
From Canada the birds followed the Canadian Lakes through Manitoba and Ontario to Minnesota (103 records) thence along the Great Lakes through Michigan (592 records) to northern Ohio (60¹ records) and thence eastward following along Lake Erie and Lake Ontario through New York (495 records) to New England where we have reports of more than 1,000 Snowy Owls. We do not have sufficient evidence to state that the birds actually followed the route indicated above but it is at least one possibility. The birds have a decided preference for large bodies of water and river courses and the concentration of the Owls in Michigan, southern Ontario, and New York as well as the scarcity of records in northern New England, lend weight to that view. On the other hand the hosts of Owls on the Maine coast may have

¹ After this paper was compiled we have received from Mr. Edward S. Thomas a list of 102 Snowy Owls captured in the state of Ohio and 32 additional sight records. Mr. George Miksch Sutton has also published an account of the invasion of these birds in Pennsylvania (Cardinal, for July, 1927) with a total of 204 captures and 39 additional sight records. It is impossible to compare these with Dr. Gross's detailed lists to ascertain how much duplication there may be but they indicate a much larger number of Snowy Owls in these two States than is given in his list. (Ed.)

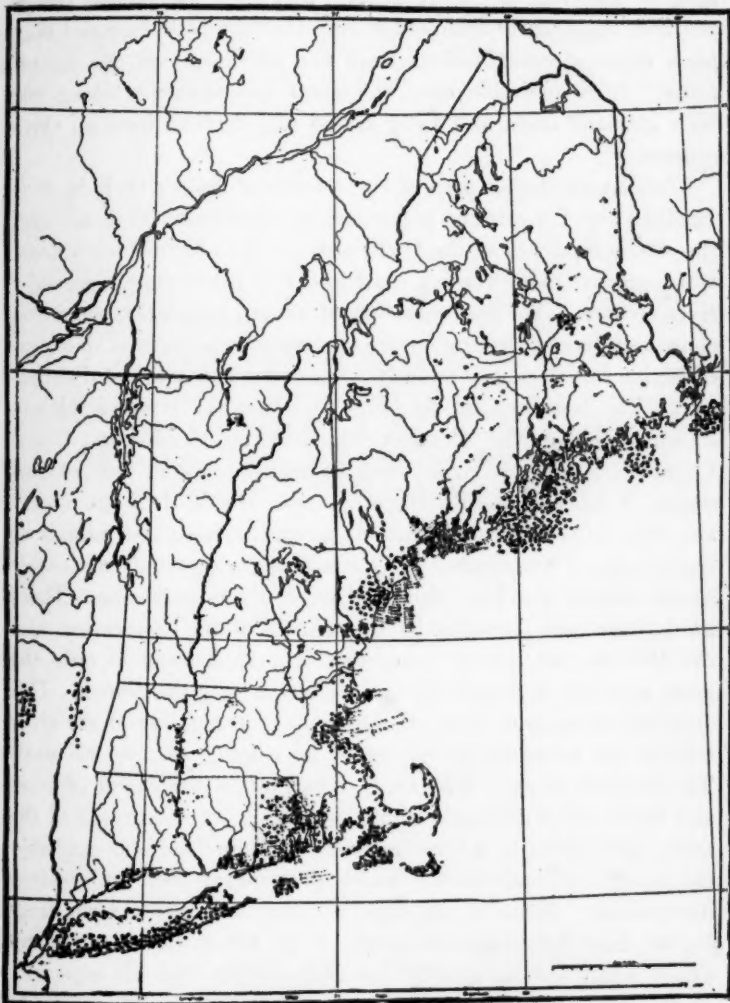
² Dr. Alexander Wetmore lists 9 to which I have added 3. (Ed.)



EIGHTY-ONE MOUNTED SNOWY OWLS IN THE TAXIDERMY SHOP OF FRED C. N. PARKE, BANGOR, MAINE, WHICH ARE ONLY A PART OF THOSE RECEIVED DURING THE FLIGHT OF 1926-27.



flown overland from the northwest. This route is possible when

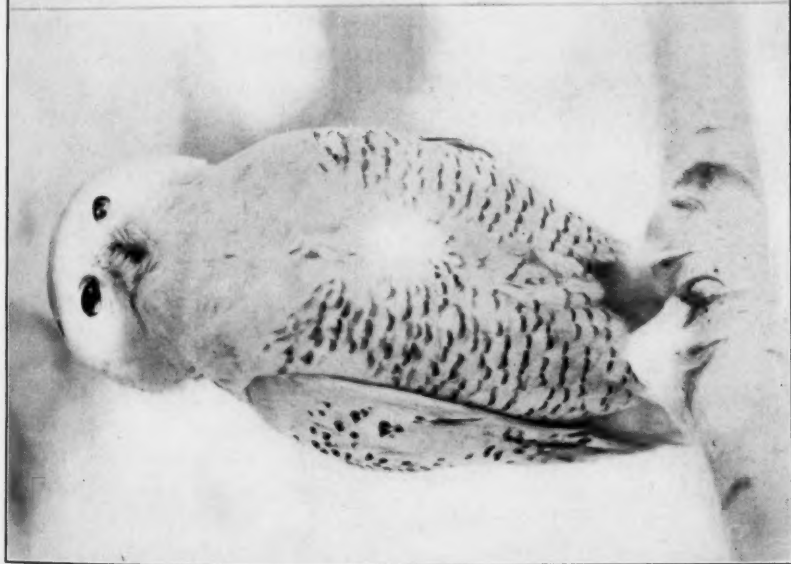


Map to show the distribution of Snowy Owls in New England and Long Island, New York. Each dot represents one Snowy Owl record.

we consider the reports from the St. Lawrence Valley of observers who noted great numbers of the Owls flying at a high

altitude to the southward during early November. The appearance of the Owls in Newfoundland and their subsequent disappearance at an early date would indicate that New England may have received contributions from the northeast via the coastal route. It is probable that the great concentration along the New England coast and Long Island was derived from all three sources.

The accompanying map of the records of Snowy Owls in New England and Long Island is particularly interesting as it indicates the strong tendency of the Owls, also noted on former migrations, to congregate along the sea coast and to a lesser degree the chief river courses. The concentration of human population along the coast may have a bearing on the number of reports from that part of Maine but it cannot entirely account for this marked distribution. The tendency of the Owls to follow the rivers is plainly indicated along the Connecticut river in Massachusetts and Connecticut, the Merrimac in Massachusetts, and the Androscoggin, Kennebec, and Penobscot rivers in Maine. It is also noticeable that there are concentrations along the coast and islands at the mouths of the rivers. This condition is especially noticeable in the case of the Penobscot and other rivers in Maine. There are but few birds recorded at the mouths of the Connecticut and the Hudson but in this connection it is interesting to note the great numbers of records on Long Island across the Sound. This distribution suggests that the Owls may have followed the river courses for considerable distances in coming to the sea-coast. The question arises, "Why do the Owls follow the chains of lakes and rivers and congregate on the sea-coast?" Since many of the Owls came to us in a semi-starved condition food was probably the most dominant factor which determined their subsequent distribution. Some of our correspondents tell of the Owls feeding on dead fish along the shores of the Great Lakes and many others relate the ravages by the Owls on the bird life especially along the Atlantic coast. One correspondent on the northern coast of the Gulf of St. Lawrence writes that the Owls lived on the Murres, which at the time of the flight were present in unprecedented numbers along that coast. At Machias Seal Island the keeper was forced to kill the Owls to protect the Ducks and Gulls



Photos by A. O. Gross.



CAPTIVE SNOWY OWLS—JANUARY 12 AND 16, 1927.



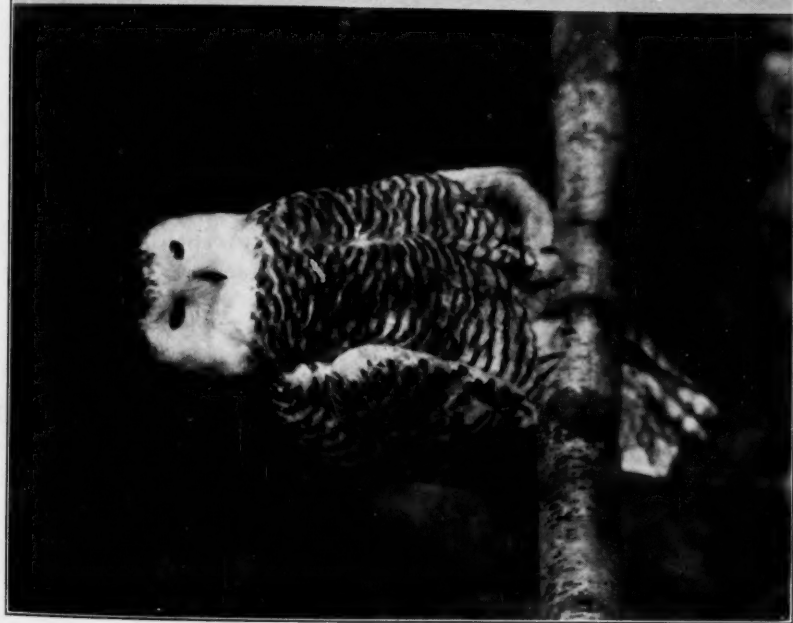
inhabiting the island and according to Allen Moses of Grand Manan Island the Owls followed the flocks of Gulls and Ducks producing great havoc among them. Mr. C. L. Hawthaway of Boston reports the killing of seven Snowy Owls which had killed live decoy ducks and states that he saw the Owls carry away many wild ducks. The Owls played havoc with the Black Ducks and killed many Pheasants on No Mans Land, Mass. The keeper, Mr. R. W. Wood shot 38 and captured nine alive during the first week after the Owls appeared. Numerous reports of this nature indicate that the Owls, especially when they first arrived, were a real menace to the bird life along our coasts. There are other reports which indicate that many Snowy Owls collected along the shore at sewer outlets, garbage dumps and similar situations where the chief interest of the birds was the numerous rats which usually infest such places. Detailed examinations of the stomachs of 94 Snowy Owls examined by Angell and Cash, taxidermists of Providence, Rhode Island, resulted in finding 55 of them empty, 24 contained rats, 3 contained squirrels, 7 contained wild native birds, 1 poultry and 4 miscellaneous food. The results of the examination of several hundred specimens of Snowy Owls at Bowdoin College in connection with the Ruffed Grouse Investigation, to be published later, also indicate that the Snowy Owl fed very largely on rats and other rodents. It is apparent that the Owls concentrated on our large lakes and on the sea coasts because of the abundant supply of dead fish, birds, rats and other food which they found there.

LIMITS OF THE MIGRATION.

Although the bulk of the Snowy Owl records came from the region roughly outlined above there were stragglers reported much farther to the west and south. The following records constitute the outposts of the migration according to the reports we have received to date. Beginning at the northern boundary of the United States our farthest west record is of an Owl taken February 7, 1927 at Thorne, Rolette County near the Turtle Mountains of North Dakota. Going along the boundary line to Minnesota we have records of fifty specimens for Rosseau County reported to us by P. O. Fryklund. Specimens taken in Dieter, Spruce Valley

and Norland Townships and four at the village of Warroad situated on "Lake of the Woods," constitute the most northern records of Snowy Owls for the United States excluding Alaska. Our only records for Iowa are one from Elkader, October 27, 1926, one from Beulah, February 1, 1927 and another taken at Frohlich all towns situated in Clayton County along the Mississippi River. From Iowa our frontier line crosses to Pana, Illinois where a specimen was taken December 16, 1926; thence to Indianapolis, Indiana where an Owl was killed on January 11, 1927. Our only other record for Indiana is of a bird shot December 6, 1926 at Fulton, Fulton County, towards the northern section of the state. From Indianapolis our line crosses to Wooster, Wayne County, Ohio where several of the Owls were reported, thence down to Wheeling, West Virginia, where one was killed on November 24, 1926. From Wheeling our line of the limit of distribution turns abruptly southward along the coast to North Carolina. In this state a male was taken on March 18, 1926 at Magnolia, Duplin County, in the southeastern part of the state. This bird according to our records is the farthest south for the 1926-27 migration. A female was taken November 29, 1926 at Middlebury, Vance County, and another at Barber, Rowan County, in the western part of North Carolina. Although the Owls went as far south as North Carolina we have comparatively few records south of Long Island, New York, indicating that the great mass of the migration halted at that point. We received records of 15 Owls from New Jersey; 12 of the latter were scattered along the coast from Elizabeth south to Atlantic City. Dr. Alexander Wetmore, of the United States National Museum, who made an effort to secure all of the records for Maryland and Virginia sent us nine records for Maryland and nine from Virginia indicating a general distribution through the Atlantic states southward to North Carolina.

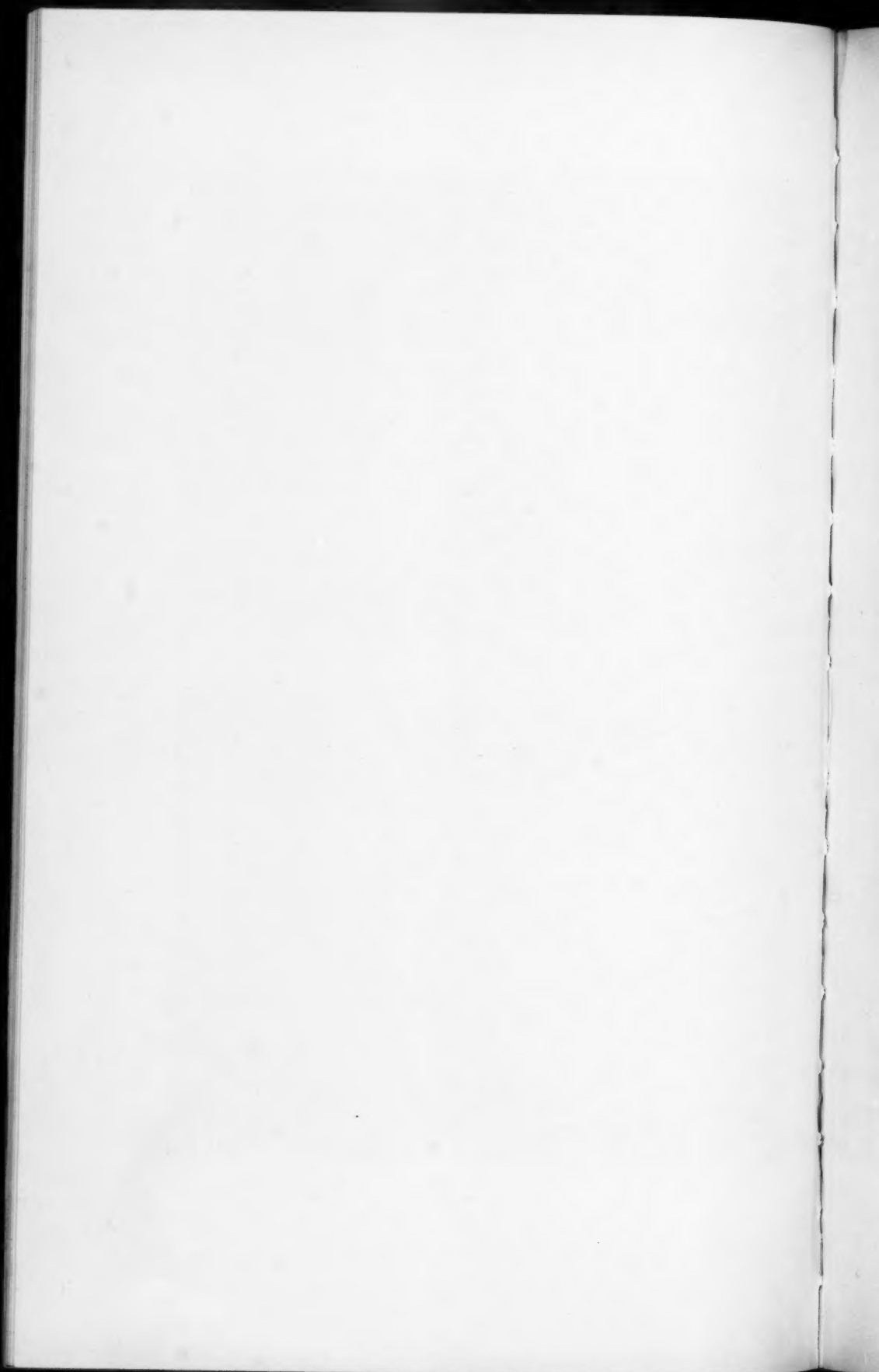
The region invaded by the Snowy Owls on this migration apparently is similar to that of the larger migrations which have taken place in the past. Unfortunately the limits of the birds in former migrations were not clearly defined making detailed comparisons impossible.



Photos by A. O. Gross



CAPTIVE SNOWY OWLS—NOVEMBER 17, 1926.



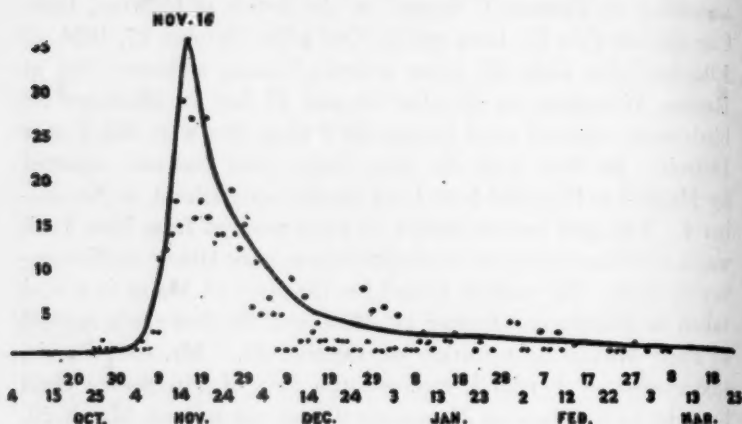
DATES OF THE SNOWY OWL MIGRATION.

The earliest record of a Snowy Owl taken in Canada is one received by a taxidermist on October 26, 1926 in northern Ontario. The first Owls of the migration arrived at Duluth, Minnesota, according to Thomas J. Storey, on the fourth of October, 1926. Our earliest date for Iowa was an Owl killed October 27, 1926, at Elkader, Miss Lulu M. Lunn writes of seeing a Snowy Owl at Racine, Wisconsin, on October 26 and 27 but in Michigan no birds were reported until November 8 when two were killed near Detroit. In New York the first Snowy Owl was one reported by Major Lee Hapgood from Long Beach, Long Island, on November 4. The next earliest record we have received from New York was a specimen taken at South Bethlehem near Albany on November 5, 1926. My earliest record for the state of Maine is a bird taken at Bangor on October 14, 1926, and the first Owls arrived at Petit Manan light station on October 15. Mr. Carl Garriss, taxidermist of Portland, received the first of 116 Snowy Owls brought to his shop on November 9, and the last on March 29, 1927. The first Snowy Owl reported for Massachusetts was one which appeared at Hawthorne during the last week of October. This bird according to Seaver L. McDonald remained in the vicinity until January 1927. In Rhode Island our first records are of three birds brought to Angell and Cash, taxidermists of Providence, to be mounted on November 9.¹

The records of the Snowy Owl for October are early and merely represent the forerunners of the migration. In order to ascertain when the flight as a whole was at its maximum we have tabulated 582 individual records of specimens taken or seen in the United States, the dates of which are known to be authentic. These records represent but a small part of the whole but they are nevertheless representative. The records group according to months as follows: October, 9 records; November, 386 records; December, 111 records; January, 38 records; February, 34 records; March, 4 records; and April, 1 record. The accompanying graph will assist the reader in interpreting the migration with respect to time. According to this graph the great influx of birds began

¹ The first record for Pennsylvania was at Phillipsburg, Centre Co., October 20, a bird taken by A. F. Erichson (Sutton).

on November 10 and on November 16 the peak of the migration was reached. By this time the flight had reached such a volume that it attracted much attention from the general public and the few days following the newspapers throughout the country heralded

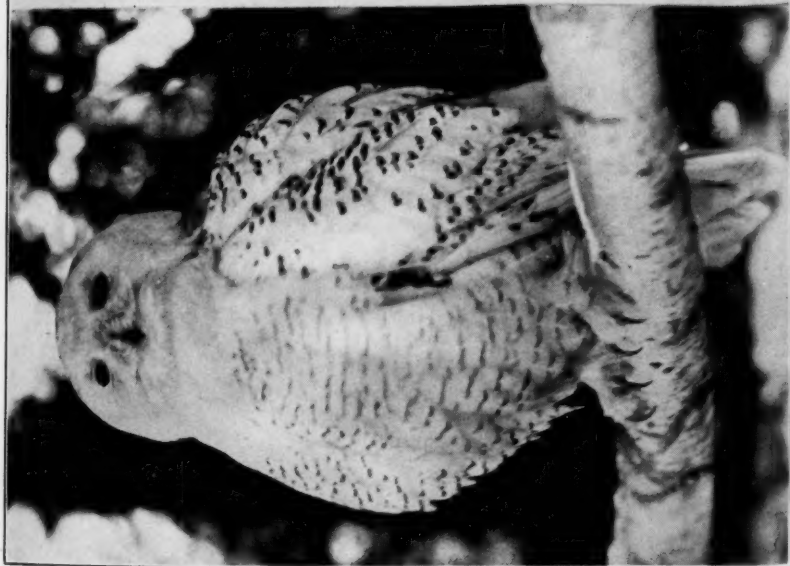


Distribution of 582 records of Snowy Owls with respect to time. The main migration in the United States began November 10 and the peak was reached on November 16 on which date there were 36 records.

accounts of this great migration. The numbers were well maintained through November but gradually waned through the month of December to January and February. A few lingered into March and one bird was seen on a farm near Brunswick during the first two weeks of April. This last record is of course abnormally late and may have been a bird escaped from confinement.

✿ Taxidermists who received 25 or more Snowy Owls and contributed their records for this report are as follows:

Name	Place	Number of Owls received
M. Abbott Frazar	Boston, Mass.	143
Carl A. Garriss	Portland, Maine	116
Angell and Cash	Providence, R. I.	106
Fred C. N. Parke	Bangor, Maine.	103
L. J. Eppinger,	Detroit, Michigan	100
Crosby Frisian Fur Co.,	Rochester, New York	97



Photos by A. O. Gross

CAPTIVE SNOWY OWLS—JANUARY 17, 1927 AND NOVEMBER 17, 1926.





Name	Place	Number of Owls received
John H. Hill,	Rochester, N. Y.	73
Thos. J. Storey,	Duluth, Minn.	70
P. O. Fryklund	Roseau, Minn.	68
John H. Hill,	Rochester, New York	65
P. O. Fryhlund,	Roseau, Minn.	61
Wilmot W. Wood,	Birmingham, Mich.	60
William Grant,	Vassar, Mich.	54
C. E. Wood,	No Mans Land, Id., Mass.	42
F. L. Wight Fur Co. Inc.,	Bangor, Maine	39
Barr Wight Fur Co.,	Bangor, Maine	35
E. P. Holaling	Gloversville, N. Y.	35
F. B. Webster,	Hyde Park, Mass.	30
J. Cleveland,	Vineyard Haven, Mass.	25

SNOWY OWLS AT SEA.

When the Snowy Owl migration wave reached the southern Canadian and New England coast some of the Owls became lost and bewildered in the storms and fogs which prevailed at that time, and flew far out to sea. After long periods of fruitless wandering many undoubtedly succumbed and were drowned but others took refuge on passing ships. A few individuals which may have relayed from other boats flew aboard liners hundreds of miles from the nearest land. The records we have received are of considerable interest and hence are given here in detail.

The first report of a Snowy Owl at sea was of one which flew aboard the S. S. *Cairton* off the coast of Labrador on October 28. Another individual was captured later on this steamship when it was off the northern coast of Scotland. On November 12, at 10 P.M. officers on board the S. S. *Republic* caught a specimen at Lat. 41.33 north and Long. 56.40 west. Monday, November 15 the liner *Celtic* landed at Boston with two of the Owls caught at sea and the S. S. *Leviathan* reported an Owl which came aboard at noon on November 16 at Lat. 46.10 north and Long. 38.42 west a distance of more than 600 miles from the nearest land. On November 19, 1926 the S. S. *Winifredian* brought two Owls to Boston which were said to have alighted on the ship when it was 400 miles from land. One of the birds went aboard the S. S. *Zimorodok* and was captured when the ship was on the "Banks"

about 200 miles east of Newfoundland. This bird was in a very exhausted condition and according to Robert Richardson, master of the *Zimorodok* there had been very heavy fogs and apparently the bird had lost its idea of position. One of the Snowy Owls settled on the S. S. *Cairnvalona* at a point 600 miles off the Scottish coast. It is probable that birds arriving on ships on the eastern side of the Atlantic were carried by other vessels for at least a part of the way. It is hardly possible that the Owls would fly the long distance necessary to come directly from America or their breeding grounds in Greenland to the northward.

In the 'Evening News' for November 29, 1926 there is a picture and an interesting account of a Snowy Owl which flew aboard the S. S. *American Trader* at a point 150 miles off the Atlantic coast. Incidentally this Owl was a victor in a desperate fight with the ship's cat. The photograph shows the cat well bandaged and with a very dejected appearance, whereas the Owl sits erect on his perch above his victim in a triumphant haughty attitude. The Anglo-American Company's boat *Winnebago* captured a Snowy Owl at sea at lat. 42. 45 N. longit. 51. 12 W., south of Greenland, on February 19, which was released on March 1, 1927, at a point midway between Dover and Deal, England. Snowy Owls observed in England were individuals probably escaped or released from ships.

Mr. H. E. Rogers, an animal dealer in Liverpool, received four specimens two of which were captured on board a ship about 50 miles from Labrador and he states the other two which came on ships directly from America presumably were caught in a similar manner. Mr. Gillespie, Director-Secretary of the Edinburgh Zoological Society, received two specimens, the first picked up 800 miles east of Labrador while the other came aboard a Glasgow bound boat just outside of New York City.

According to a report by Mr. D. Seth-Smith two specimens were received by the London Zoological Gardens on November 26, 1926, which had flown aboard the S. S. *City of Flint* when off the coast of Newfoundland. About the same time one of the Owls was brought to Southampton on an American ship. On December 2 a specimen was presented to the Gardens which was captured on the S. S. *American Trader* off the Newfoundland

coast and another was said to have been caught when this boat was on a former westward journey to New York. Mr. Seth-Smith, who has received six of the Owls from ships arriving from America, states: "From my own experience at the Zoological Gardens during nearly 20 years, I can only remember two or three instances of Snowy Owls being captured in the Atlantic, and sent to the Gardens, the last occasion being in November 1922, when one was captured 300 miles east of New York."

The records we have received probably represent only a small part of the many instances of Snowy Owls taking refuge on ships and of hosts of others which were lost at sea, but the instances cited serve to emphasize further the great magnitude of the Snowy Owl migration of 1926-27.

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A NEW RACE OF *MOLOTHRUS BONARIENSIS*
FROM BRAZIL.

BY ELSIE M. B. NAUMBURG AND HERBERT FRIEDMANN.

Molothrus bonariensis milleri,¹ new subspecies.

Subspecific characters.—Female: Similar to female of *aequatorialis* but smaller, less olivaceous below. Male: Similar to male of *aequatorialis* but bluer, less violaceous and smaller.

Type.—No. 128345, Amer. Mus. Nat. Hist., ♀; Urucum, near Corumbá, Matto Grosso, Brazil, Dec. 12, 1913; Roosevelt Expedition, George K. Cherrie. Wing, 95; tail, 63; culmen (from the base), 16.5 mm.

Measurements.—Male (4 adults), wing, 103–107 (105); tail, 71–72 (71.5); culmen, from base, 17.5–19 (18.2). Female (3 adults) wing, 93–95 (93.2); tail, 61–64 (63); culmen, from base, 16–16.5 (16.3).

Remarks.—Juvenal plumage of male very dark. Above, head, nape, scapulars, interscapulars, back, rump, and upper tail-coverts, dark brownish black; wing-coverts and remiges, and rectrices fuscous brown; entire underparts similar to back but paler and more brownish on the centre of the throat, abdomen, flanks, thighs and under tail-coverts. Bill (in dried skin) dusky yellowish brown; darker towards tips and along the culmen; feet (in dried skin) dark brown, soles of the toes yellowish.

Juvenal plumage of female: Entire bird fuscous, the outer primaries narrowly edged with very light grayish, throat slightly lighter than rest of underparts, the crown slightly darker than rest of upperparts; bill (in dried skin) yellowish brown, dusky towards the tip and at the base of culmen; feet (in dried skin) yellowish brown.

Range.—Brazil: Matto Grosso, Corumbá, Descalvados, Cuyabá. *American Museum Nat. History New York, N. Y.*

¹ Named for Mr. W. D. Miller of the American Museum of Natural History.

A REVISION OF THE CLASSIFICATION OF THE
COWBIRDS.

BY HERBERT FRIEDMANN.

THE Cowbirds form a natural little group of the family Icteridae and may be characterized as follows: Rather small, terrestrial or semiterrestrial Icteridae; bill stout and shorter than the head; nostrils with a superior operculum; middle phalanx of middle toe shorter than terminal phalanx; outer toe (without claw) reaching beyond second (subterminal) joint of middle toe; nostril small and round, much encroached upon beneath by feathering of the loreal antiae; all but one genus parasitic. (Taken partly from Ridgway, Bull. 50, U. S. N. M., part 2, 1902, p. 205.) The Cowbirds form a link in some respects between the Icteridae and the Fringillidae but belong in the former family although it is hard to draw a line between the two. The absence of obvious rictal bristles is the only external character that distinguishes the Icteridae as a group from the Fringillidae and the Cowbirds agree in this respect with the other members of the Icteridae.

The Cowbirds have been usually regarded as belonging to two genera; *Molothrus* and *Tangavius*, but I feel that *Molothrus* (as currently used) should be split into two genera, one for the bay-winged forms, and one for the other members of the genus. Fortunately a name is available for the Bay-winged Cowbirds—*Agelaioides* of Cassin, who first suggested a genus for these birds. Ridgway (Bull. 50, U. S. N. M., part 2, 1902, p. 207) wrote that the fact that the Bay-winged Cowbird, *M. badius* is not parasitic, ". . . taken in connection with the very different proportions of the primaries and the peculiar coloration . . . may necessitate the adoption of the name *Agelaioides* Cassin for a genus containing *M. badius* and *M. fringillarius*." *Agelaioides* has been regarded as a valid subgenus by most writers but it seems worthy of generic rank. It contains the most primitive Cowbirds and may be characterized as follows: non-parasitic Cowbirds with short, rounded wings; "female" type of coloration in both sexes; no courtship display; the song utterance unlike the regular form common to all the other Cowbirds (*Molothrus* and *Tangavius*).

The genus *Molothrus* contains the typical Cowbirds, all of which have the typical type of song and courtship display; long, pointed wings, dark-plumaged males; and parasitic breeding habits. By typical courtship display I mean the fluffing of the body feathers, arching the wings, and drawing in the tail and bowing over forwards; by typical song I mean the glassy squeak preceded by a few bubbling notes. The display and song of *M. ater* being the best known to most people may be taken as typical. A person familiar with the North American *M. ater* in life would easily recognize *M. bonariensis* and *M. rufo-axillaris*, by sound and habit, as Cowbirds closely related to the North American species.

Molothrus rufo-axillaris differs greatly from *ater* and *bonariensis* in several ways. It has no sexual plumage dimorphism, both sexes being black (male type of plumage); the tail is proportionately longer and also considerably more rounded, and the wing tip longer. For these reasons I place it in a separate subgenus from *ater* and *bonariensis*. Inasmuch as the genus *Molothrus* is based on *M. ater*, the subgenus containing *rufo-axillaris* needs a name for which I propose

Streptovagus,¹ subgen. nov.

Subgeneric characters.—Black coloration in both sexes; wing tip at least twice as long as exposed culmen, tail longer and more rounded than in typical *Molothrus*.

This subgenus contains but a single species, *Molothrus rufo-axillaris*, the so-called Screaming Cowbird (hence the subgeneric name).

The subgenus *Molothrus* contains two species, *bonariensis* and *ater* and their races.

The genus *Tangavius* contains two species, *aeneus* and *armenti* and the former divides into three races. The genus may be characterized as follows:—Cowbirds with the three outer primaries incised on their inner webs; the feathers of the mantle enlarged to form a distinct ruff in the male; and the plumage of the neck and breast somewhat hair-like.

¹ Streptus (noise) + vagus (vagabond).

KEY TO THE GENERA OF COWBIRDS.

- A. Outer primaries incised.....*Tangavius*.
AA. Outer primaries not incised.
B. Wing tip shorter than exposed culmen.....*Agelaioides*.
BB. Wing tip longer than exposed culmen.....*Molothrus*.

Genus *Agelaioides*.

According to most writers there are two species of Bay-winged Cowbirds, *badius* and *fringillarius*, while Hellmayr (Verh. Orn. Ges. Bay., vol. 13, 1917, p. 108) has described a race of *badius* from the highlands of Bolivia—*A. badius bolivianus*. The difference between *badius* and *fringillarius* is more than one of shades of color and until more is learned of the latter (which is one of the rarest birds of the world in museums) I feel that it is entitled to specific rank. The genus then contains two species (with three geographic races).

KEY TO THE SPECIES AND RACES

- A. Remiges chestnut broadly tipped with fuscous... *A. fringillarius*.
AA. Remiges dark olive brown slightly edged with chestnut
B. Wing length averaging 100 mm.....*A. badius bolivianus*.
BB. Wing length averaging 90 mm.....*A. badius badius*.

Agelaioides badius badius (VIEILLOT).

Tordo pardo-roxizo, Azara, Apunt., 1802, i, p. 290.

Agelaius badius Vieill., Nouv. Dict. d'Hist. Nat., vol. 34, 1819, p. 535.

Icterus fringillarius Spix, Av. Bras., i, 1824, p. 68.

Dolichonyx badius Cassin, Proc. Ac. Nat. Sci. Phil., 1866, p. 6.

Demelioteucus badius Stempelmann & Schulz, Bol. Ac. Nac. Cienc. Cordoba, 1890, vol. 10, p. 399.

Molothrus badius Hudson, Proc. Zool. Soc. Lond. 1870, p. 672; Selater, Cat. Birds Brit. Mus., vol. 11, 1886, p. 338; Brabourne & Chubb, Birds S. Amer., 1912, p. 435.

Molothrus badius badius Wetmore, Bull. 133 U. S. N. M., 1926, p. 387.

The typical form of the Bay-winged Cowbird occurs in the northern half of Argentina (south to Rio Negro), the whole of Uruguay and parts of Paraguay (northern limit of range not definitely known).

Agelaioides badius bolivianus (HELLMAYR).

Icterus badius Lafr. & d'Orb., Syn. Av., vol. 2, 1838, p. 7 (part; Cochabamba & Sicasica, Bolivia).

Molothrus badius Scater & Salvin, Proc. Zool. Soc. Lond., 1879, p. 608 (Tilotilo, prov. Yungas, Cochabamba, Sicasica (ex d'Orb.).

Molothrus badius bolivianus Hellmayr, Verh. Orn. Ges. Bay., vol. 13, 1917, p. 108.

The Bolivian Bay-winged Cowbird occurs in the highlands of central and northern Bolivia (provinces of Cochabamba, Yungas, Sucre, etc.). These birds are similar to the typical race but are somewhat larger and browner above. However Wetmore (Bull. 133 U. S. N. M., 1926, p. 387) writes that a skin in the U. S. National Museum from Mendoza is browner above than others from Buenos Aires but no larger and that another from the last named province has a wing length greater than that given by Hellmayr for *bolivianus*.

Agelaioides fringillarius (SPIX).

Dolichonyx fuscipennis Cassin, Proc. Ac. Nat. Sci. Phil., 1866, p. 7.

Molothrus fuscipennis Cassin, Proc. Ac. Nat. Sci. Phil., 1866, p. 7.

Icterus fringillarius Spix, Av. Bras., i, 1824, p. 68.

Molothrus fringillarius (Spix) Av. Bras., i, 1824, p. 68; Scater, Ibis, 1884, p. 8; Ridgway, Bull. 50, U. S. N. M., part 2, 1902, p. 207; Wetmore, 'Auk,' 1919, p. 197.

The Pale Bay-winged Cowbird is an extremely rare bird, being known from less than a dozen specimens. Its range appears to be eastern Brazil from Ceará and Pernambuco to Minas Geraes.

Genus *Molothrus*.

(Subgenus *Streptovagus*).

***Molothrus rufo-axillaris* CASSIN.**

Icterus brevirostris d'Orb. & Lafr., Syn. Av., vol. 2, 1838, p. 7; Berlepsch, Journ. f. Orn., 1887, pp. 10, 116.

Molothrus rufo-axillaris Cassin, Proc. Ac. Nat. Sci. Phil. 1866, pp. 14, 23; Scater & Salvin, Proc. Zool. Soc. Lond., 1868, p. 140; Ridgway, Bull. 50 U. S. N. M., part 2, 1902, p. 207.

Molothrus rufoaxillaris Scater & Hudson, Arg. Orn., vol. 1, 1888, p. 86; Scater, Cat. Birds Brit. Mus., vol. 11, 1886, p. 338.

Molobrus brevirostris Stempelmann & Schulz, Bol. Ac. Nac. Cienc. Cordoba, vol. 11, 1890, p. 399.

Molothrus brevirostris Chubb, Ibis, 1910, p. 644; Dabbene, Orn. Arg., 1910, p. 402; Wetmore, Bull. 133 U. S. N. M., 1926, p. 386.

The Screaming Cowbird is found in the northern half of Argentina (south to Rio Negro), Uruguay, Paraguay, southern Bolivia,

and southeastern Brazil. It is the only species of Cowbird that has not become different enough in different parts of its range to warrant recognition of geographic forms.

(Subgenus *Molothrus*).

KEY TO THE SPECIES.

- A. Body blackish with a metallic green or bluish sheen males.
 - B. Head coffee brown *M. ater* and races.
 - BB. Head not coffee brown *M. bonariensis* & races.
- AA. Body brownish with no metallic sheen females.
 - B. Height of bill at base less than $\frac{3}{4}$ length of culmen *M. bonariensis* & races.
 - BB. Height of bill at base at least $\frac{3}{4}$ length of culmen *M. ater* & races.

Molothrus bonariensis. CABANIS.

KEY TO THE RACES.

- A. Body with no bright metallic sheen females.
 - B. Wing length less than 90 mm. *minimus*.
 - BB. Wing length more than 90 mm.
 - C. Wing length more than 108 mm. *cabanisii*.
 - CC. Wing length less than 108 mm.
 - D. Middle of abdomen lighter than rest of underparts and streaked with olive-brown *occidentalis*.
 - DD. Middle of abdomen not lighter than rest of underparts and not streaked with olive-brown.
 - E. Entire body dark blackish *melanogyna*.
 - EE. Body not blackish but brownish.
 - F. Underparts almost as dark as back.
 - G. Wing length more than 98 mm. *aequatorialis*.
 - GG. Wing length less than 98 mm. *milleri*.
 - FF. Underparts much lighter than back.
 - G. Tail 80 mm. or longer *venezuelensis*.
 - GG. Tail less than 80 mm. *bonariensis*.
 - AA. Body with a bright metallic sheen males.
 - B. Wing length more than 120 mm.
 - C. Wing length more than 125 mm., tail more than 100 mm. *cabanisii*.
 - CC. Wing length less than 125 mm., tail less than 100 mm. *aequatorialis*.
 - BB. Wing length less than 120 mm.

of 12 specimens from the provinces of Cochabamba, Sucre, and Santa Cruz and comparing them with the topotype in the Museum of Comparative Zoology. The basal constriction of the bill and the tomial flexure are not at all constant in this series. The birds average larger than an equal series from Argentina but the extremes of both are about the same and the average difference is not great. Therefore I do not recognize *maxillaris*.

***Molothrus bonariensis minimus*, DALMAS.**

Molothrus minimus Dalmás, Mem. Soc. Zool. France, 13, 1900, p. 138.

Molothrus atronitens Cabanis, in Schomb. Reis. Brit. Guiana, vol. 3, 1848, p. 682; Sclater, Ibis, 1884, p. 6; Ridgway, Bull. 50 U. S. N. M., part 2, 1902, p. 211; Stone, Auk, 1891, p. 346.

Molothrus atro-nitens Goeldi, Ibis, 1897, p. 164; Chapman, Bull. Am. Mus. Nat. Hist., 1894, p. 36.

Molothrus discolor Cassin, Proc. Ac. Nat. Sci. Phil., 1866, p. 20.

Lamprosar guianensis (not of Cabanis) Cassin, Proc. Ac. Nat. Sci. Phil., 1866, p. 22.

Molothrus sericeus Sclater, Cat. Am. Birds, 1862, p. 135; Newton, Ibis, 1860, p. 308.

Molothrus bonariensis Cory, Auk, 1886, p. 220; Cat. W. I. Birds, 1892, p. 124.

Molothrus bonariensis atronitens Chapman, Bull. Am. Mus. Nat. Hist., vol. 36, 1917, p. 631.

Molothrus bonariensis minimus Hellmayr, Verh. Orn. Ges. Bay., vol. 14, 1920, p. 281.

Range.—Northern Brazil, the Guianas, Venezuela, Colombia (one record La Morelia), Tobago, Trinidad, Grenadines, Lesser Antilles, Vieque, Greater Antilles (introduced) and Barbadoes (introduced). Birds from Venezuela and Colombia are only doubtfully referable to this race and are probably intermediates between *minimus* and *venezuelensis*.

***Molothrus bonariensis venezuelensis* STONE.**

Molothrus venezuelensis Stone, Auk, 1891, p. 347; Brabourne & Chubb, Birds S. Am., 1912, p. 435.

Molothrus discolor (not *Passerina discolor* Vieill.; not Sclater & Salvin, Proc. Zool. Soc. Lond., 1879, p. 509) Cassin, Proc. Ac. Nat. Sci. Phil., 1866, p. 20.

Molothrus bonariensis venezuelensis Cherrie, Sci. Bull. Mus. Bklyn. Inst. Arts & Sci., 1916, p. 210.

Range.—Venezuela. This race is easily distinguished from

aequatorialis by the dark color of the females, and larger size of the males in *aequatorialis*.

***Molothrus bonariensis occidentalis* BERLEPSCH AND STOLZMAN.**

Molothrus occidentalis Berlepsch & Stolzman, Proc. Zool. Soc. Lond., 1892, p. 378.

Xanthornus purpurascens Hahn, Vog. aus Asien, Lief v. t. 4; Voeg. as Af. etc., pt. 5, pl. 4, 1819.

Molothrus purpurascens Cassin, Proc. Ac. Nat. Sc. Phil., 1866, p. 20.

Molothrus occidentalis Brabourne & Chubb, Birds S. Am., 1912, p. 435.

Molothrus bonariensis occidentalis Bangs & Noble, Auk, 1918, p. 459; Chapman, Bull. A. M. N. H., 1926, p. 697.

Range.—Western Peru and southwestern Ecuador (coastal).

***Molothrus bonariensis aequatorialis* CHAPMAN.**

Molothrus bonariensis aequatorialis Chapman, Bull. A. M. N. H., 1915, p. 661; 1917, p. 631; 1926, p. 697.

Range.—According to Chapman this race inhabits the tropical zone of southwestern Colombia south into western Ecuador (coastal region or at least west of the Andes). In the American Museum there is a juvenal specimen probably of this race (A. M. N. H. 136758) from southern Panama west of the mountains (Boca de Cupe, Tuyra River, Darien). The range may, therefore, extend along the coast from Ecuador to Darien.

***Molothrus bonariensis cabanisii* CASSIN.**

Molothrus discolor (not *Passerina discolor* Vieill., not Cassin, Proc. Ac. Nat. Sc. Phil., 1866, p. 20) Selater & Salvin, Nom. Av. Neotr., 1873, p. 37, et Proc. Zool. Soc. Lond., 1879, p. 509.

Molothrus cassini Finsch, Proc. Zool. Soc. Lond., 1870, p. 576; Berlepsch, Journ. f. Orn., 1873 p. 250; Selater, Ibis, 1884, p. 6; Allen, Bull. Am. Mus. Nat. Hist., 13, 1900, p. 163.

Molothrus robustus Cabanis MS. teste Finsch, l. c.

Molothrus cabanisii Cassin, Proc. Ac. Nat. Sc. Phil., 1866, p. 13; Selater, Ibis, 1884, p. 166; Stone, Auk, 1891, p. 346; Brabourne & Chubb, Birds S. Am., 1912, p. 435.

Molothrus bonariensis cassini Chapman, Bull. Am. Mus. Nat. Hist., vol. 34, 1915, p. 662.

Molothrus bonariensis cabanisi Chapman, Bull. Am. Mus. Nat. Hist., vol. 36, 1917, p. 631.

Molothrus bonariensis cabanisii Todd & Carriker, Annals Carnegie Museum, vol 14, 1922, p. 476.

Range.—This race occurs in the central Andes in Colombia

(and in western Venezuela?). Chapman records it from several stations in the tropical zone west of the eastern Andes in Colombia. The stations are as follows: Caldas, San Antonio, Cali, Miraflores, and San Agustin. According to Todd & Carriker it is rare in the Santa Marta region.

***Molothrus bonariensis milleri* NAUMBURG & FRIEDMANN.**

Molothrus bonariensis milleri Naumburg & Friedmann, Auk, October, 1927, p.

This race seems to be more closely allied to the western *aequatorialis* than to any other. The female of the present race is less olivaceous below and is smaller than the female of *aequatorialis*. The male of *milleri* is bluer, less violaceous, and smaller than that of *aequatorialis*. Range: Brazil, Matto Grosso-Corumba, Descalvados, Cuyaba.

***Molothrus bonariensis melanogyna* STOLCMAN.**

Molothrus sericeus Pelz., Orn. Bras., 1871, p. 200, part.

Molothrus bonariensis, Brabourne & Chubb, Birds S. Am., 1912, p. 434, part.

Molothrus bonariensis melanogyna Stoleman, Ann. Zool. Mus. Polonici. Hist. Nat., 1926, pp. 194-195.

The female is solid blackish above, not brownish as in all other races of this cowbird.

Intermediates between this race and typical *bonariensis* occur in Rio Grande do Sul, Brazil; Paraguay (Puerto Pinasco); and extreme northeastern Argentina (Misiones). The subspecies is known only from the province of Rio de Janeiro (La Raiz, Organ Mts., Serra do Itatiaya, Campo do Jordao) and Parana, Brazil.

***Molothrus ater* (BODDAERT).**

The North American Cowbird has become differentiated into three geographic races:—*ater*, *artemisiae*, and *obscurus*.

KEY TO THE RACES.

- A. Body blackish with greenish metallic sheen.....males.
- B. Wing length less than 105 mm.....*obscurus*.
- BB. Wing length more than 105 mm.
- C. Wing length more than 112 mm.....*artemisiae*.
- CC. Wing length less than 112 mm.....*ater*.

- AA. Body not blackish; with no metallic sheen.....females.
 B. Wing length less than 95 mm.....*obscurus*.
 BB. Wing length more than 95 mm.
 C. Wing length at least 100 mm.....*artemisiae*.
 CC. Wing length less than 100 mm.....*ater*.

The differences between *ater* and *artemisiae* are average ones so that by no means all the specimens of either can be identified by the above key. *M. a. artemisiae* is similar to *M. a. ater* but somewhat larger and with a slenderer bill. *M. a. obscurus* is distinctly smaller than either of the other two. *M. a. californicus* does not seem distinct enough from *obscurus* to warrant recognition. (No specimens seen however.)

***Molothrus ater ater* (BODDAERT).**

Oriolus ater Bodd., Tabl. Pl. Enl., 1783, p. 37.

Molothrus ater Coues, Check List, 1873, p. 43 (part); Bendire, Life Hist. N. Am. Birds, vol. 2, 1895, p. 590 (part); Wetmore, Auk, 1920, p. 402.

Emberiza pecoris Wilson, Am. Orn., 2, 1910, p. 145.

Passerina pecoris Vieillot, Nouv. Dict. d'Hist. Nat., 25, 1819, p. 22.

Molothrus pecoris Swains., Faun. Bor.-Am., 2, 1831, p. 277; Baird, Rep. Pacific R. R. Surv., 9, 1858, p. 524; Salvin & Godman, Biol. Centr.-Am., Aves, 1, 1886, p. 450 part.

Fringilla ambigua Nuttall, Man. Orn. U. S. & Can., 1, 1832, p. 484 (young).

Molothrus ater ater Ridgway, Birds N. & Middle Am., 2, 1902, p. 207 part; Barrows, Mich. Bird Life, 1912, p. 434; Chapman, Handb. Birds E. N. Am., 1912, p. 359.

Range (breeding).—United States and Canada, north to Nova Scotia, New Brunswick, central Quebec and southern Ontario; west to eastern Minnesota, northern Iowa, central Nebraska, southwestern Kansas, and the greater part of New Mexico (except the extreme west); south to central Texas, the greater part of Louisiana, south central Arkansas central Tennessee, southeastern Kentucky, and central Virginia; east to the Atlantic coast from Ashland, Virginia, north to Dartmouth, Nova Scotia.

Range (winter).—United States and Mexico, north to Massachusetts, New York, and Michigan, south to Florida, Alabama, Mississippi, Louisiana, Texas, and central Mexico (Michoacan). Accidental in Bermuda.

***Molothrus ater artemisiae* GRINNELL.**

Molothrus ater artemisiae Grinnell, Univ. Cal. Publ. Zool., 5, 1909, p. 276; Taylor, Univ. Cal. Publ. Zool., 7, 1912, p. 380; Oberholser, Auk, 1918, p. 209.

Molothrus ater dwighti Bishop, Auk, 1910, p. 61.

Molothrus ater Baird, Orn. Simpson's Exp., 1876, p. 379; Am. Ornith. Union Check List, 1886, no. 495 part; Preble, N. Am. Fauna 27, 1908, p. 407.

Molothrus ater ater Ridgway, Bull. 50, U. S. N. M., part 2, 1902, p. 207 part; Visser, Auk, 1912, p. 110; Burleigh, Auk, 1921, p. 558.

Molothrus pecoris Baird, Rep. Pacific R. R. Surv., 9, 1858, p. 524 part; Cassin, Proc. Ac. Nat. Sc. Phil., 1866, p. 17 part; Henshaw, Zool. Exp. W. 100th Merid., 1875, p. 312 part.

Emberiza pecora Say in Long's Exp. Pittsburgh to Rocky Mts., 2, 1823, p. 199 footnote, part.

Range (breeding).—Western North America, north to southern Manitoba, southwestern Mackenzie, and central British Columbia; west to southwestern British Columbia, western Washington, central Oregon, and eastern California; south to south eastern California, southern Nevada, Utah, south central Colorado, south central Nebraska and southeastern South Dakota; east to Minnesota.

Range (winter).—South to Texas, Vera Cruz, and Michoacan, Mexico, north to the Canadian border; accidental on the Farallon Islands, Calif.

***Molothrus ater obscurus* (GMELIN).**

(*Sturnus*) *obscurus* Gmelin, Syst., Nat. 1, pt., 2, 1788, p. 804.

Molothrus obscurus Cassin, Proc. Ac. Nat. Sc. Phil. 1866, p. 18; Brewer, Bull. Nutt. Orn. Cl., vol. 4, 1879, p. 123.

Molothrus pecoris var. *obscurus* Baird, Brewer, & Ridgway, Hist. N. Am. Birds, 1874, vol. 2, pl. 32, fig. 8; Lawrence, Mem. Bost. Soc. Nat. Hist., vol. 2, 1874, p. 280.

Molothrus ater obscurus Coues & Sennett, Bull. U. S. Geol. & Geogr. Surv. Terr., vol. 4, 1878, p. 22; Ridgway, Bull. 50 U. S. N. M., part 2, 1902, p. 210.

Molothrus ater californicus Dickey & Van Rossem, Condor, 1922, p. 308.

Range.—Resident in Mexico and the southwestern United States north to southern Louisiana, southern Texas, southwestern New Mexico, southern Arizona, and southern California; south to Colima, Oaxaca, and Vera Cruz, Mexico.

Genus **Tangavius**.

KEY TO THE SPECIES.

- A. Body silky brown with golden reflections. *T. armenti* ad. male¹
 AA. Body not silky brown, with no golden reflections. *T. aeneus* male & female.

¹ Female of *T. armenti* not known.

Tangavius armenti (CABANIS).

Molothrus armenti Cabanis, Mus. Hein., 1, p. 192; Journ. f. Orn., 1861, p. 82; Cassin, Proc. Ac. Nat. Sc. Phil., 1866, p. 18.

Range.—Coast region of Colombia; Cartagena (Cabanis), Savanilla (Lawrence). Cassin recorded a specimen from Demarara, but the identification was probably wrong. The specimen was said to have been in the collection of the Academy of Natural Sciences at Philadelphia, but Dr. Witmer Stone tells me that he has no knowledge or recollection of any specimen of *T. armenti* in that institution. It probably was an immature *Molothrus bonariensis minimus*. As far as I have been able to discover only four specimens of this rare bird exist in the museums of the world; an adult male in the Amer. Mus. Nat. Hist. at New York and three immature birds in the Berlin Museum. The specimen listed in the 'Cat. Birds Brit. Mus.' is probably not of this species. It was listed doubtfully as *armenti* and recorded as from Venezuela. It came to the British Museum with the Slater collection. In Slater's catalogue it is listed as "*Molothrus?* (ins. Trinitat?)."

Tangavius aeneus (WAGLER).

KEY TO THE RACES.

- A. Wings and tail with a vivid metallic sheen. adult males.
 B. Back and rump alike, bronze color. *T. a. involucratus*.
 BB. Back bronze color; rump distinctly violet.
 C. Wing over 112 mm. *T. a. aeneus*
 CC. Wing under 112 mm. *T. a. assimilis*.
 AA. Wings and tail with no vivid metallic sheen. females and young
 B. General color dark sooty gray or blackish.
 C. Wings and tail slightly glossed with bluish green. *T. a. involucratus* ad. female.
 CC. Wings and tail not glossed. *T. A. involucratus* yg. male.

BB. General color not very dark; sooty gray.

C. Upper parts faintly glossed; feathers of back with darker centers. *T. a. aeneus* ad. female.

CC. No gloss above; feathers of back with no darker centers.

D. Under parts indistinctly streaked with pale yellowish gray. *T. a. aeneus* yg. male.

DD. Under parts unstreaked. *T. a. involucratus* yg. male.

NOTE:—I have not seen any adult females or young of *T. a. assimilis* but they probably differ from the corresponding plumages of *T. a. aeneus* in size only, the ratio being the same relatively as given for the adult males. I have also not seen any young females of *T. a. aeneus*.

***Tangavius aeneus aeneus* (WAGLER).**

Psarocolius aeneus Wagler, Isis, 1829, p. 758.

Agelaius aeneus Gray, Gen. Birds, 2, 1849, p. 346.

Molothrus aeneus Cabanis, Mus. Hein., 1, 1851, p. 192 footnote; Ridgway, Man. N. Am. Birds, 1887, p. 367 part.

Molothrus aeneus Cassin, Proc. Ac. Nat. Sc. Phil., 1866, p. 18 part; Sclater, Cat. Birds Brit. Mus., vol. 11, 1886, p. 334, part; Salvin & Godman, Biol. Centr.-Am., Aves, 1, 1886, p. 451 part.

Callothrus aeneus Ridgway, Man. N. Am. Birds, 1887, p. 589 part.

Callothrus aeneus aeneus Ridgway, Bull. 50 U. S. N. M., part 2, 1902, p. 203.

Range.—The lowlands of western Mexico, in the states of Sonora and Sinaloa and the Territory of Tepic, north to southern Arizona (Sacaton).

***Tangavius aeneus involucratus* LESSON.**

Molothrus aeneus Sclater, Proc. Zool. Soc. Lond., 1856, p. 300; Cat. Birds Brit. Mus., vol. 11, 1886, p. 334; Am. Ornith. Union Check-List, 1886, no. 496; Salvin & Godman, Biol. Centr.-Am., Aves, 1, 1886, p. 451 part.

Agelaius aeneus Cassin, Proc. Ac. Nat. Sc. Phil., 1848, p. 90.

Icterus bonariensis Bp., Proc. Zool. Soc. Lond., 1837, p. 116.

Molothrus robustus Cabanis, Mus. Hein., 1, 1851, p. 193; Ridgway, Man. N. Am. Birds, 2d ed., 1896, p. 367 part.

Callothrus robustus Ridgway, Man. N. Am. Birds, 1887, p. 594; Bendire, Rep. U. S. N. M., 1893, p. 599; Ridgway, Bull. 50 U. S. N. M., part 2, 1902, p. 201.

Tangavius involucratus Lesson, Revue Zool., II, 1839, p. 41.

Range.—Eastern Mexico and Central America breeding north to San Antonio, Texas. From Texas its range extends through

eastern Mexico (states of Tamaulipas, Vera Cruz, Puebla, northern Oaxaca, and Yucatan), Guatemala, Nicaragua, Costa Rica, to Veragua, Panama.

***Tangavius aeneus assimilis* (NELSON).**

Molothrus aeneus (not *Psarocolius aeneus* Wagler) Cassin, Proc. Ac. Nat. Sc. Phil., 1866, p. 18 part; Lawrence, Mem. Bost. Soc. N. H., 2, 1874, p. 281 part; Salvin & Godman, Biol. Centr.-Am., Aves, 1, 1886, p. 451 part.

C(allothrus) aeneus Ridgway, Man. N. Am. Birds, 1887, p. 589 part.

Callothrus aeneus assimilis Nelson, Auk, vol. 17, 1900, p. 266; Ridgway, Bull. 50 U. S. N. M., part 2, 1902, p. 204.

Range.—Southwestern Mexico in the states of Jalisco, Colima, Guerrero, and the Pacific slopes of Oaxaca.

Biological Laboratory, Amherst College, Amherst, Mass.

THE GALAPAGOS PENGUIN IN CAPTIVITY.

BY CHAS. HASKINS TOWNSEND.

Plate XXVIII.

No sea bird exhibited at the New York Aquarium attracts more attention than the Galapagos Penguin (*Spheniscus humboldtii*). Our first specimen received in 1915, came from southern Chile. It adapted itself to the new conditions at once and gave every indication of enjoying life, swimming actively and feeding freely every day. A platform in the fifteen by thirty foot pool served as a resting place, as it does for the Galapagos Penguins now on exhibition. One of the latter was brought back by the Arcturus Expedition last year, the other was received in April of the present year, an involuntary passenger on Mr. W. K. Vanderbilt's yacht.

The Galapagos birds are sociable and except after feeding, are eager to walk a light narrow plank whenever the space between the platform and the coping of the pool is bridged for them. Then comes the joy of waddling around the smooth coping and looking at the visitors crowded along the railing. Unlike the Chilian Penguin they rather resent being carried. When turned loose they are inclined to follow the keeper about the floor, especially if he has some live minnows.

Fishes thrown into the water interest them even more than a chance to walk the plank. They promptly give an exhibition of what hungry Penguins can do under water, following the darting minnows at high speed until all are captured. When at ease on the surface the Penguin floats buoyantly, the bases of the wings being almost at the surface while the tips are thrust deep down. They often submerge the eyes looking for minnows that might have escaped them.

In slow paddling the tail is usually held slightly above the surface. In scratching the head while afloat the bird turns on its side, the head is submerged and turned sidewise so that the toes can reach it.

Swimming is done with the wings, the feet serving as rudders, the webs being spread and the soles turned up. When diving for minnows the motions are so rapid that it is difficult to deter-

mine the exact position of the feet. They are apparently used only for steering.

In walking up the plank the head is held low and the back humped. In waddling around the coping of the pool the body is nearly erect while the tip of the tail almost drags.

When the bird drops into the water from coping or platform there is no head-on dive, it strikes the water flat on the breast.

When one Penguin is placed on the floor, the other follows around the coping peering through the iron grill, each calling to the other with a soft "throaty" *whoo*, the bill benign turned up and the throat expanded. This call is the only sound made so far as we have observed. When widely separated either bird will follow the writer while he imitates the soft *whoo* call. Minnows thrown on the floor are seized and swallowed very quickly.

The Penguins and a Galapagos Booby, occupy the platform on entirely peaceable terms and all three are adepts at catching pieces of fresh fish thrown to them. One of the Penguins placed on the scales on March 12, 1926 weighed exactly six pounds, the birds being in good condition.

The moulting period lasts about three weeks, during which the Penguin is listless, feeds but little and seldom enters the water.

At the Aquarium the birds occupy a large salt-water pool. Their former companions, kept at the Zoological Park, did not live long, probably because they lacked sea-water. When the survivors were sent to the Aquarium their first movement was the drinking of sea-water. The Boobies acted similarly. Sea birds that do not naturally visit fresh waters as do Gulls, Cormorants and White Pelicans, cannot apparently survive long without sea water to drink. Those breeding about inland waters doubtless need the sea water and return to it annually when lakes and rivers are frozen. It is probable that such birds retained permanently in zoological gardens would live longer if provided with sea water. A tame Guillemot once kept by the writer on board the U. S. S. *Albatross* went into a decline, from which it quickly revived when given sea water to drink. We have observed Gulls in Lower California after a flight across the land, to alight and drink sea water exactly as domestic fowls drink.

Since the preceding was written one of the Penguins died as the

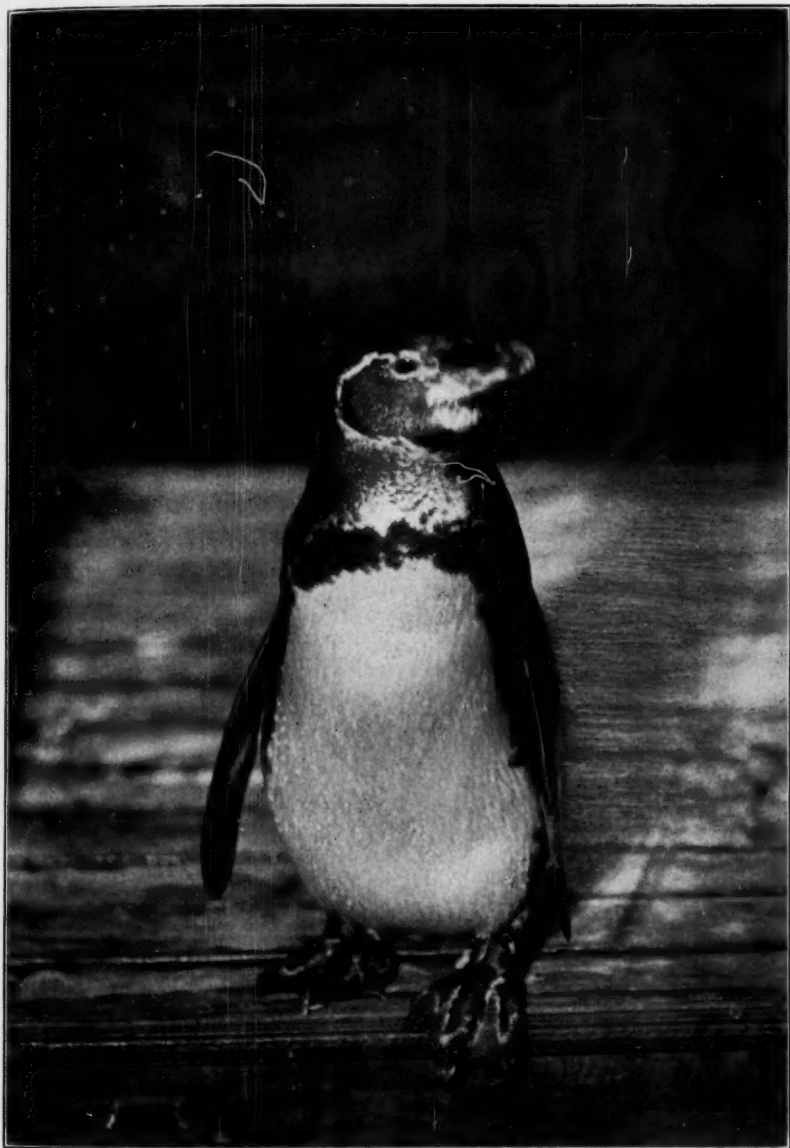


Photo by Florence Vandamm.

Courtesy of 'Vanity Fair'

THE GALAPAGOS PENGUIN (*SPHENISCUS MENDICULUS*) IN THE NEW YORK
AQUARIUM.



result of a fifteen foot fall. The birds were given an occasional airing on an enclosed part of the roof, from which one unfortunately escaped. The survivor was returned to the pool where the writer a few days later observed it pacing along the platform begging to be let out. It promptly walked up the plank and was there interested only in peering through the iron grill as though it sought its missing mate on the floor. It was then turned loose in the office, every part of which it explored restlessly for half an hour, but remained silent. We placed a large mirror against a radiator which the bird found immediately and did not desert. It touched the beak of the reflected Penguin, closed its eyes and rested a couple of minutes, when it began to plume its feathers. Then there followed several minutes of effort to get closer to its supposed companion. Finally, baffled by the glass, it went behind the radiator and utter its soft *whoo*. The Penguin then found its reflection in the glass door of a bookcase next to the radiator and made repeated attempts to get behind the case at each end, occasionally giving the call.

The bird spent the next hour either in front of the mirror or the glass door, frequently attempting to get behind one or the other. It could not have been merely seeking a hiding place as there were such nooks nearby. Thinking the bird was wearied by its efforts to solve the mirror problem, it was sent back to the pool.

In the evening when the building was deserted I placed the Penguin on the coping of the pool and concealing myself behind a pillar tried to imitate its call. The bird answered only while I kept out of sight.

On a subsequent visit to the office it remained close to the mirror and was much disturbed when the mirror was removed across the room, looking in all directions, peering into some low shelves and calling at intervals. It then devoted its attention to the glass door of the bookcase, but later discovered the mirror before which it remained. The Penguin answered our calls only when the mirror was taken away.

When the mirror was carried rapidly around the room the bird followed persistently as long as its reflected image could be seen.

When the Penguin was placed on a chair beside a small aquarium

it at once became interested in the occupants, making repeated attempts to seize the minnows and goldfishes that swam nearest the glass. Further experiments with this bird may present other aspects of Penguin behavior.

When the Booby died the Penguin was evidently lonesome and took to pacing the platform more restlessly than ever. It now has the company of a Chilean Penguin. The relations between the two birds are amicable and when sent to the roof both seek shelter in the same box.

New York Aquarium, Battery Park, N. Y. City.

GRAYSON'S PIGEON (*ZENAIIDURA GRAYSONI*) IN
CAPTIVITY.¹

BY E. W. GIFFORD.

THROUGH the courtesy of Dr. Barton W. Evermann, Director of the Museum of the California Academy of Sciences, and through the special efforts of Mr. Joseph R. Slevin, I received at my home in Oakland, California, on May 20, 1925, a number of Grayson's Pigeons, a species peculiar to Socorro island, Revillagigedo group.

The species is hardly to be called a free breeder in captivity. I have reared but two young, both hatched in 1926. Deserted eggs, presumably laid by this species, were frequently found. In one instance a pair incubated two eggs until slightly past the hatching time, but they had been cracked shortly after laying. The one other example of incubation on the part of the same pair resulted in the fine pair of squabs which have been reared to maturity. My experience with the species warrants the assertion that it is a very fickle nester in captivity.

Of the seventeen examples received on May 20, 1925, at least four were young birds, as evidenced by the buff edges of the primary coverts and tertiaries. Evidently, therefore, the 1925 breeding season on Socorro was over when they were captured. In fact the expedition obtained neither eggs nor nestlings.

By June 1, 1925, the heads and necks of birds which had been partially denuded during the voyage were well studded with pin feathers. By June 17, so far as I could see without handling the birds, there had been no general moulting of body and flight feathers, but there had been some growth of tail feathers to replace lost ones. Probably there really had been some growth of body feathers, for there had been much preening, which probably had not been altogether for the removal of dirt.

On June 14, 1925, I saw the first courtship and on June 21, the first manifestation of interest in nests, a pair being observed to examine nesting boxes. On the 23rd, I saw a pair in a nest and on the 24th found two eggs in another nest. These were apparently not incubated. On June 30 I found an egg in another nest, cold

¹ Herbert Bright has published an account of the breeding of this species in England. *Avicultural Magazine*, 4th series, vol. 4, pages 223, 224, 1926.

and apparently deserted. On July 1, the pair that was apparently responsible for the two eggs observed on the 23rd was engaged in renewed courtship, the female squatting on the ground and beseeching her mate to mount her. At another male who showed interest she thrust with her beak. Her importunities were in vain during the time I watched. Later her mate was seen pursuing her very vigorously, changing his run to a hop now and then. Twice he paused to coo. His ardor was intermittent. After a bit of violent pursuit he would lose interest, only to resume again in a few minutes. The entire pursuit was on foot on the ground.

The call is like that of *Zenaidura carolinensis*. In paying his addresses to the female, the male usually runs after her on the ground, stopping at intervals to coo, and, sometimes, if he gets close enough, striking at her with his bill. When cooing, his back, from occiput to tip of tail, forms a straight horizontal line. The beak is pointed downward and the crop region much distended, showing the beautiful iridescence of its sides. On one occasion I observed a male in an unusual courting attitude. After pursuing the female for some time, he crouched down on a gravelly bit of soil, elevated his tail slightly, puffed out his crop feathers (perhaps cooing, but I could not hear him), and kept both wings twitching or moving slightly, very much as does *Chamaepelia passerina*. Later in the day the female was seen crouching and twitching her wings close to the male, in vain invitation to him to tread her. She also fondled him, picking his neck feathers, but could not induce him to feed her. The male spent considerable time chasing other birds of the same species.

Treading takes place on the ground, not on a perch. The act takes place not just once or twice but several times prior to laying. More than once a pair was observed to copulate twice within an hour. Coition is preceded by preening of the feathers under the wings on the part of the male, and by crouching and trembling of the wings on the part of the female. Feeding, or mock-feeding, of the female by the male immediately precedes treading. I say mock-feeding, because in some cases, I have observed the male hold the female's bill crosswise in his own, instead of thrust down his throat as in actual feeding. Coition is followed by both birds standing very erect for a moment, the male spreading his

tail and swelling his throat. Often the male appears to lack enthusiasm and procrastinates, while the female arduously shakes her wings.

Occasionally I have seen males (including a widowed one) stand alone in one place and coo. If on a broad level surface instead of a perch, the tip of the tail rests against the ground. This is perhaps a coo to call a mate, rather than a definite part of the addresses paid a female who is at hand.

Two breeding pairs in one aviary had distinct spheres of influence, or domains, one pair taking the west shelter, the other the adjoining north shelter. If either pair encroached on the other's territory, swift pursuit followed.

By August 2, 1925, two females had laid a number of eggs, all of which had been abandoned. Although one bird left the nest readily when closely approached on one occasion, I am sure that my occasional entry into the aviary had nothing to do with the desertions. By August 15, all desire to mate and nest was over and it appeared that a moult had begun, for the heads of several were studded with pin feathers, especially on the face. By September 13, no further evidence of moult was to be seen. In September and the early half of October, 1925, deserted eggs were again found in nests and on October 4 treading was observed. In the winter of 1926-27, mating and laying took place during November, December, January, and February, though in September and October, 1926, there was no mating activity whatever. Judging from the 1926 events the period of quiescence in regard to reproduction extends roughly from July 1 to November 1. I am inclined to think that the sea voyage in 1925 upset the usual course of events in that year. July and August seem to be the months of heaviest moult.

Cold weather does not diminish the mating ardor of these tropical pigeons. Early in January, 1926 and 1927, with the 7 A. M. temperature ranging around 40° F., three pairs were observed copulating. One pair was nest-building on January 17, 1926, the female remaining in the nesting box while the male brought sticks to her. On January 24, traces of a broken egg were found in this nest. In 1927, the earliest eggs were noted February 6.

On February 7, 1926, one of the mated females was found dead,

but the other pair in the same aviary was sitting. Now and then either the male or female would pursue the widowed male if he became conspicuous. On February 24, the two eggs were found broken and dried in the nest. Meanwhile, in another aviary a third pair was observed nest building on February 21, and two eggs, presumably theirs, were found on the 24th. This pair, though making frequent false starts at nest building, and laying an occasional egg, never settled down to serious duties. On February 28, courtship was again in full swing with the two pairs. The widowed male in one aviary came in for a good deal of pursuit.

The following incomplete calendar presents the data concerning the rearing of the pair of young:

March 14, 1926: Nest, but no eggs. Very arduous pursuit of female during preceding week. Also abuse of widowed male by both male and female.

March 21: Not yet sitting.

April 10: Sitting.

April 23: Egg shells on ground.

April 30: A glance into nest at 6:15 P. M. showed male sitting, one blackish, half fledged squab, with eyes open, beside him; the other under him.

May 4: One squab on ground. Other flew from nest. Though their tails were very short and they appeared only about three-quarters fledged, they walked well. One apparently remained on the ground overnight, for I found it there on the morning of the fifth. The other had flown up to the nest, six feet above the ground and with no intervening perches. It seemed to me a remarkable procedure for so young a bird.

May 5: The widowed male started to pay addresses to the mother of the squabs. He was savagely rebuffed, being struck at and chased by her. In what appeared to be fury, she then chased other pigeons, pulling feathers from a *Gallicolumba rubescens*, and then assaulting her own mate. He immediately retaliated, however, and chased her about, finally pausing to coo.

May 10: Both squabs were in the nest this morning and both are evidently able to fly up from the ground. Both are marked with longitudinal broken-line streaks of black on the back.

May 15: One young one was seen feeding for the first time, with its parents.

May 16: New nest under construction. Male chased one squab a bit. Squabs look longer-legged than parents, probably because feather growth is incomplete.

May 17: Squabs perch by themselves. Parents still nest building.

May 22: Both squabs feeding themselves. Tails now quite long. Parents not sitting, though one egg in nest.

May 23: Egg deserted. Nest building renewed.

June 6: Treading.

June 22: Female moulting extensively around head.

June 25: Both adults and young moulting. In adults, the tail feathers especially being replaced, also face feathers. In two adults the feathers around the eyes and beak had all been shed at one time, so that the new pin feathers looked like a gray mask.

August 4: One young bird moulting tail feathers.

August 7: No signs of mating.

October 1: The two young are indistinguishable from the adults. They show no modification in the direction of *Zenaidura carolinensis*. On August 22, a young bird which had been received from Mr. Herbert Bright, of Liverpool, England, was moulting around the face. It was evidently somewhat younger and therefore later in moult than the two young I had reared.

November 25: Parents resume courting.

I failed to ascertain the period of incubation, but Mr. J. W. Steinbeck, who has also bred the species, informs me that it is seventeen days, thus being considerably in excess of the usual fourteen days of most pigeons.

Zenaidura graysoni is definitely a crepuscular feeder, indulging in a meal after my various Geotrygoninae, with the exception of *Oreopeleia chrysia*, have sought their perches. *Chrysia*, however, does not feed in the dusk, nor does *Phaps chalcoptera*, which like *chrysia* walks nervously and restlessly about and occasionally flies, as though desirous to make an evening flight to some distant roosting place. *Graysoni* devotes the minutes of gathering dusk to eating and then quietly retires to its perch, after perhaps a few flights around the aviary. I have seen them feeding at 7:40 P. M. on May 26, and at 7:50 P. M. on June 17.

Much time is spent in flying apparently for the mere pleasure. Yet with all of the flying there is no bumping against the wire

sides of the aviary. Indeed, the species is very graceful on the wing, though perhaps not quite so graceful as *Zenaidura carolinensis*. The flying does not seem to be due to fretfulness at confinement, but rather for the pure joy of it. Nor is there any fretful pacing back and forth along the wire in an attempt to escape confinement. Immature birds try their wings frequently, flapping them slightly while held quite straight up and raising themselves thereby a foot or two above the ground.

Young birds and females bluff adult males, rushing at them and jabbing with the beak at the same time, and sometimes striking also with one wing. The adult usually retreats. This may take place not only at feeding, but at other times. One evening I saw a young bird or female standing behind a male and making jabs at him with the beak, in an effort to make him fly. As he had his back to the aggressor he could not see what was happening, and as the latter was not actually striking him, he seemed unaware of what was going on. A young bird or female with a sore tarsus was particularly pugnacious. Although such valiant bluffers of their own species they give ground quickly before the attacks of *Gallicolumba rubescens*.

I have frequently noticed a high degree of pugnacity in young Pigeons and in crippled adults. It seems as though there were some correlation between the degree of helplessness and the boldness of front displayed.

Graysoni takes to a hose bath with enthusiasm. Rarely one attempts to bathe in the drinking water receptacle which is only about three inches in diameter. One day I saw one dip its breast in, shake itself, and at the same time raise one wing to catch under the wing the spray thus created. For rain or hose spray, the usual position is reclining on one side with the opposite wing uplifted. Sunbaths are usually taken lying belly down with one wing spread out on the ground, so that the sun strikes the upper surface of the wing and back.

Like other pigeons, *graysoni* sinks its beak deep in water when drinking. The throat is often expanded immediately afterwards, which I am prone to anthropomorphize as registering enjoyment of the deep, cool draught.

"Exceedingly inquisitive" characterizes the attitude of this

species towards man. When outside of the aviary, but with my face against the wire, they come within six inches. Inside the aviary, if one sits down, they are soon busy picking at the metal hooks on one's shoes or pulling at the metal ends of the shoe strings.

They seem to be strictly graminivorous in diet, declining to eat the meal worms of which *Gallicolumba* and *Starnoenas* are excessively fond.

That temperature controls the breeding impulse in these tropical Pigeons seems to me very doubtful, since mating takes place with the thermometer as low as 40° F. I think that abundance or scarcity of food is a far more important factor than temperature. The temperature at 7 A. M. on the morning the young *graysoni* hatched was 53° F, no doubt considerably lower than the minimum temperature on Socorro during the hatching season. When incubation began on April 9, the temperature was also 53° F. at 7 A. M. Between the 9th and 23rd the lowest temperature at 7 A. M. was 49, the highest 57. During the two weeks after hatching the lowest temperature at 7 A. M. was 51 and the highest 61. On May 4 when the squabs left the nest the temperature at 7 A. M. was 57. Temperature appears to me as a factor only in so far as it falls low enough to cause the death of squabs left alone in the nest without the warmth of the parent's body. Two squabs will survive in a lower temperature than a single squab, because of keeping one another warm.

*University of California,
Berkeley, California.*

FURTHER NOTES ON THE BIRDS OF HATLEY, QUEBEC,
1925-1926.

BY HENRY MOUSLEY.

IN 'The Auk' for April, 1925, I recorded my experiences with the birds in 1924, i. e., to September 22, the date upon which I left Hatley to spend the winter in Montreal, and perhaps reside there permanently—which has been the case—so that these few notes cover only short visits paid to my happy hunting grounds during the past two years.

My pair of Starlings as already recorded, as last seen on the day I left Hatley September 22, and later, by a lady friend, Mrs. Geo. Hill, on December 1, 1924, when they were flying in and out of the ball on the top of the spire of St. James Church at five o'clock in the evening, after which time, they were not seen again that year. The same lady, however, records their return on February 10, 1925, and I saw the parent birds feeding their young on May 30, and again on June 7, and 11, in the same old nest in the ball on the top of the church spire. Another correspondent, Mr. Henry Haines, reports having seen them on and off all through the winter of 1925-26, and says they nested again in the old spot in 1926. I spent the latter part of May, and early June, 1925, at Hatley, arriving there on May 19, and leaving on June 13, during which time I was able to make another study of the nest building of the Northern Parula Warbler, which will be found fully recorded in 'The Auk' elsewhere.

On May 26, I was able to add the Red-breasted Nuthatch definitely to my list of breeding birds, by finding the parents feeding their young, in a hole in a dead ash tree, some fifty feet above the ground. The exact status of this bird has always been somewhat of a puzzle, its appearance being most erratic, as my previous notes have indicated, and it was therefore a great satisfaction to be able to clear up definitely the fact of its breeding at Hatley. The following day, I found the White-breasted Nuthatch also feeding young, in a hole in a maple tree, 35 to 40 ft. above the ground, not many of this birds' nests having been previously found. On May 30, I came upon a brood of chicks of

the Canadian Ruffed Grouse, just out of the nest. Three days later, or on June 2, I found a Spotted Sandpiper's nest on "the marsh" containing four very small eggs, looking for all the world counterparts of those found in 1912, and 1913—which have been referred to in 'The Auk' for January, 1916, p. 60—the measurements being almost identical 1.20 x 90.

On this same date I found a nest, and four eggs of the Marsh Hawk, also on "the marsh," the first I had ever found there, the birds having always nested in another locality, a mile or more away, which, however, had been cleared of undergrowth in the fall of 1924.

On June 10, I found a nest and eggs of the Canada Warbler on the eastern shore of Lake Massawippi, and five days previously, whilst on my way to this same lake, I noticed a pair of Starlings feeding their young, in the same hole, which they had occupied in 1923 and 1924, in the old poplar tree near Massawippi Village.

On the 10th, and 12th, I came upon two more broods of the Canadian Ruffed Grouse, these birds apparently having done particularly well this year, the same as they did in 1924.

On June 12, I found another nest of the Yellow Warbler containing one egg, in the same garden and cedar hedge, as the one found in the village in 1924, the home life of the birds having been recorded in the April number of 'The Auk' for 1926. The male bird in the present instance, had selected a tall fir as his principal "singing tree," as it was nearer to the new nest than the old dead maple he had favoured the year previous. Unfortunately, I had to leave Hatley on the following day, and did not return again that year, so was unable to make a second study of the home life of the birds. Of the twenty-five species of Warblers so far recorded, I only saw seventeen this year during my short visit, the absent ones, or at least the ones I failed to notice—and which for the most part are uncommon in the district—being the Orange-crowned, Palm, Yellow Palm, Mourning, Black-poll, Pine, Wilson's, and Tennessee Warblers. Other interesting birds noted, were a male and female Rose-breasted Grosbeak, Yellow-bellied, Olive-sided, and Crested Flycatchers.

The following year (1926), my proposed annual visit did not take place until August 13, when in passing Lake Massawippi in

the train, I saw three Herring Gulls—this beating my “fall” record of last year, by a fortnight—and one other on the 29th, when returning to Montreal. On the 17th, at Hillhurst, a small village some seven miles to the east of Hatley, I saw a flock of 25–30 Starlings. Solitary Sandpipers returned to “the marsh” on the 20th, somewhat later than usual. Goldfinches and Purple Finches were unusually numerous, and Bobolinks were still about on the 29th, the day I left. On September 7, however, I paid a flying visit, for one night only—after orchids—the only bird item recorded, being the whistled love note of the Chickadee, “phe-bé,” which note, with exception of the month of May, is more often heard in September, than in any other month of the year. From a record kept during the years 1915–1924, I find I have recorded hearing it on seventy-six different occasions, in May, and sixty-one, in September, the two months next in order, being April and June, when the note was heard on forty-seven occasions in the first named, and forty-two in the second named month.

In conclusion, possibly the year 1926 will go down as a very bad one indeed for the Ruffed Grouse, the cold, wet, and late spring—combined no doubt with other causes—having had a disastrous effect on the hatching of the eggs, as well as on the young birds.

I cannot call to mind having found a single nest or brood of young birds—so very different from the years 1924, and 1925, when many of both were found—and very few adults have been seen. There has been a discussion I understand of placing a closed season throughout the year on these birds, but nothing has come of it so far.

Appended will be found the annotated notes on the six new species added to my list since 1923, the numbering being carried on consecutively.

188. *Phasianus torquatus*. RING-NECKED PHEASANT.—Already recorded ‘Auk,’ vol. XLI, 1924, p. 589.

189. *Larus philadelphia*. BONAPARTE’S GULL.—Rare transient. An example of this bird was obtained in the Magog river below the large factory on August 13, 1921.

190. *Harelda hyemalis*. OLD SQUAW.—Rare transient. Two examples of this Duck have been obtained in the district, one on August 15,

1921, on the Cherry river at Magog, and the other on Lake Massawippi, on October 28, 1925, which, latter bird, was mounted for its owner Mr. F. Mitchell of Sherbrooke.

191. *Gallinula galeata*. FLORIDA GALLINULE.—Rare transient. There are two records of this species having been obtained in the district, one, on the Cherry river near Magog, on June 6, 1922, and the other, near Little Magog Lake, on October 28, 1921. This latter bird was observed by the driver of a train, attempting to cross the railway track—running alongside the above lake—but not noticing it emerge on the other side of the train, he examined his engine at the next station, and found the bird dead, and entangled in the cowcatcher. It was mounted for its owner, Mr. F. J. Peck of Sherbrooke.

192. *Fulica americana*. AMERICAN COOT.—Rare transient. An example of this bird was obtained on the Cherry river near Magog, on November 1, 1920, and was mounted for its owner, Mr. F. N. Lewis. Unfortunately, a cat got hold of it with several other mounted birds, and tore them to pieces.

193. *Spizella pusilla pusilla*. FIELD SPARROW.—Rare summer visitant; April 29 to October. This species must certainly be very locally distributed, as I have never had the pleasure of seeing it, the above record of its arrival being taken from Mr. R. G. Price's list of spring arrivals at Sherbrooke, in 1909, 'The Ottawa Naturalist,' vol. XXIV, 1910, No. 3, pp. 55-57. Writing to me on December 29, 1925, Mr. Price in speaking of the Field Sparrow says "Have observed several every year since I can remember anything about birds, and that is almost fifty years ago. Have never found a nest, but suspect they nest much like the Song Sparrow. Their plaintive little song is usually delivered from the top of a fence post or some low object, and which I have interpreted in my clumsy way as "sit-sit-sit and s-i-n-g f-r-e-e, the last two notes being drawn out about three times as long as the first three, and the last note somewhat lower than the fourth." Unfortunately, the fact of this Sparrow having been recorded at Sherbrooke escaped my notice, until too late for me to make its acquaintance, before leaving Hatley in 1924. However, I hope to do so someday with the help of Mr. Price, to whom I am indebted for being able to add the species to my list.

194. *Falco peregrinus anatum*. DUCK HAWK.—Rare summer resident. On August 6, 1927, whilst on a short visit to Ayer's Cliff, I had the pleasure of seeing a fine mounted example of this species, which had been shot in the immediate neighborhood during the last week in April of the above year. There were two birds—presumably a pair—which probably nest on Mt. Oxford, or on the western shore of Lake Massawippi at the northern end, at both of which places, nests are said to have been seen in inaccessible places.

469 Harvard Ave., Montreal, Que.

A COMPARATIVE FIELD STUDY OF WRIGHT'S AND
HAMMOND'S FLYCATCHERS.

BY J. HOOPER BOWLES AND F. R. DECKER.

WE have advisedly called this article a "field study" largely for the reason that Hammond's Flycatcher (*Empidonax hammondi*) and Wright's Flycatcher (*Empidonax wrighti*) contrast much more strongly in the field when alive than they do in the hand when dead. Their appearance and actions in general, especially when in their nesting haunts, are so different that it would be practically impossible for a fairly experienced ornithologist to mistake one for the other when he had once had the opportunity of studying them while they were both nesting together in the same vicinity. Such opportunities were offered us in the summers of 1923, 1924, and again in 1926, so that we now feel justified in putting some of the results of our observations in print, in addition to the fact that we have collected specimens of both species. These conditions were obtained among the foot-hills on the east side of the Cascade Mountains in the state of Washington. On the west side of the Cascades the Hammond's is a regular, though somewhat rare, summer resident among the large Douglas Firs, while the Wright's can be considered only as a rare migrant.

No little confusion has occurred regarding the nesting of these two Flycatchers and the Gray Flycatcher (*Empidonax griseus*) in past literature, so that we trust our contribution may prove of some value. Our operations were conducted for the greater part in different sections of Chelan County, famous for the beauty of its mountain scenery, and also in the adjacent Okanogan County, the altitude where we worked varying from one thousand to fourteen hundred feet. The forests in these localities abound in conifers, most of which are firs and the western yellow pine, commonly called "Bull Pine," but in addition there is a very large variety of deciduous growth. Mountain streams are everywhere, so that it forms a paradise for bird, beast and man during the summer months.

We started in on this study with no more material than having taken the birds, so the gradual development proved extremely

fascinating, especially when in combination with the other interesting species found in the same region. The main objective of our first trip was to find the nests of Townsend's Warbler (*Dendroica townsendi*), its nesting haunts being confined exclusively to the fir trees. Consequently, it was with *hammondi* that we first became acquainted in home life, as every one of the goodly number of nests located were found in firs or the Western Yellow Pines. As a rule the nests were saddled on a large limb, occasionally where a few small twigs branched out, and some ten or fifteen feet out from the trunk of the tree. Only one exception to this rule was noted, this nest being close against the trunk of a small fir and saddled on two small branches, the height being only twelve feet from the ground. About twenty-five feet from the ground was the average height, extremes being fifty and twelve feet, and for this reason it was almost always necessary to do a human spider act on a rope in order to collect them. The altitude where the birds were found nesting in eastern Washington was always close to the one thousand foot level, stopping abruptly within a couple of hundred feet. The female sits very closely after incubation has commenced, so that it is sometimes necessary to lift her off the nest in order to ascertain the contents, but she is seldom or never found on the nest until the set is complete. After being flushed she is the tamest of the small Flycatchers, usually returning to the tree very soon and otherwise displaying her anxiety. The male is very watchful around the nest and will promptly drive off any other bird that comes in its vicinity, in this way sometimes showing the oologist that a nest is near at hand. We once saw a beautiful male Townsend's Warbler attacked and driven off after quite a battle, in which the dusty colored little Hammond's looked like a tramp. These birds are never at all shy in the vicinity of the nest and are usually easily approached at any time elsewhere. The eggs are usually four in number, rarely three, but never more than four so far as we have seen. They are pale creamy white in color, mostly unspotted, but not infrequently sparingly marked with small dots of red brown. In fact, marked eggs are almost as often found as in eggs of the Phoebe. The shape is most often rounded, with a slight tendency to ovate. The dimensions will be considered later

in this article. Complete sets of eggs are seldom found earlier than June 5, and the majority come several days later than this. The nest is a compact, neat little affair, built mostly of plant fibres and a few pieces of fine dead grass, lined with horsehair and feathers. Externally the character of the plant fibres gives it a silvery appearance, which will usually identify it at a glance from any nests of the other small birds. The size is about the same as a small nest of *E. wrighti*, although the two are quite distinct from each other.

Let us now consider the nesting habits of the clean colored Wright's Flycatcher, which are as utterly different from Hammond's as are the actions of the birds themselves. *E. wrighti* is a bird of the deciduous thickets, in wide contrast to the fir-loving *hammondi*, and it is there that we must go if we expect to find it. They are nearly always extremely shy and, if it were not for their notes, the birds would seldom be noticed even where they are common. Any kind of deciduous bush or small tree seems about equally desirable as a nesting site, for we have found them in the following locations:—red willow, birch, wild rose, alder, cottonwood, maple, and one each in fir and western yellow pine, the last two being the only instances we have seen of their using conifers. The nest is almost invariably built in an upright crotch, the only exception being the one in the fir, which was saddled on a forked limb close to the ground. About six feet from the ground is the average height, the extremes being fifteen and two feet. The bird can only be closely approached when the female is on the nest, and here her actions are exceedingly unusual. She will always sit so closely that one has to lift her off the nest, but it is impossible to judge of the contents by this as she is just as likely to be building as to have a complete set of eggs. A striking example of this was one nest that we found built about ten feet up in a slender alder, which the sitting bird positively refused to leave. The tree could not be climbed with safety, so we whittled it off about three feet from the ground and lowered it down. The bird "sat tight" all the time and had to be pried off the nest which, much to our amazement, was little more than half completed and absolutely empty. We then tied the two sections of the tree together and later on found that the change and disturbance had

not seemed to bother the bird at all, as she finished her nest and laid a set of four eggs. The young, when well grown, hold their heads over the sides of the nest and the broad base of the beak can easily be noticed when one is standing on the ground below them, and the difference from the slender billed Hammond's is much more apparent than it is in the adult birds. Tame as the female is when on the nest, her actions are completely changed the instant that she leaves it, for then she is the shyest of the shy and it requires a long and cautious hiding in order to get even a sight of her afterwards. We have never seen the male indicate the presence of the nest in any way or come near it at any time. The eggs are almost invariably four in number, the only exception to this rule being a set of five that we found during the summer of 1926. They are, like those of *E. hammondi*, pale creamy white, usually unmarked, but not infrequently dotted with light brown and are larger than eggs of that species in nearly all cases, and less rounded, averaging about .69 x .55 inches. Our largest egg of *E. hammondi* measures .65 x .50 inches, but a series of both show the decidedly smaller size of that species. The nest is composed of much the same materials as Hammond's, but is somewhat more bulky and not as neatly and compactly built. Usually there are little streamers of dead grass or plant fibres hanging from the outside, while the feather lining is frequently very high. Altogether, while it cannot be called a neat structure, it certainly is a very pretty one. The measurements average as follows:—inside depth 1.25 inches, diameter 2.00 inches; external depth 3.00 inches, diameter 3.50 inches. Nest building commences decidedly earlier than Hammond's, the nest and five eggs above mentioned being heavily incubated when taken on May 29, and we have found nests containing young that must have had fresh eggs close to the middle of May. The bulk of the fresh sets, however, may be found about May 30, and it is hard to explain the difference between these early and late broods as unquestionably only one brood is reared in a season.

In regard to identifying the two species in the field, oddly enough it is really easier to tell them there than when actually in hand, although this is perhaps not strictly true. However, in life Hammond's shows himself a dusky backed, sooty breasted, short

tailed little chap, while Wright's is a gray backed, light breasted, long tailed bird, appearing decidedly the larger of the two. These characteristics may seem a trifle exaggerated here, but as seen in life they are recognizable at once. In fact, Hammond's suggests more than anything else an undersized Western Wood Pewee (*Myiochanes richardsoni richardsoni*).

We have no record for the Gray Flycatcher (*Empidonax griseus*) in the state of Washington, but, in conclusion, a short mention of its nest and eggs based on the experiences of others may prove of interest by way of comparison. It seems to prefer a more or less desert region and during the nesting season is not likely to be found associated with the other two Flycatchers mentioned in this article. Both nest and eggs are very much larger than those of even Wright's Flycatcher, the eggs of *griseus* in our collection averaging .75 x .55 inches and being much purer white. In fact, in our opinion, there would not be the smallest likelihood of mistaking the nest and eggs of one for the other by anyone who has seen both.

Tacoma and Kiona, Wash.

OBSERVATIONS ON THE SPRING MIGRATION OF APHRIZA AND GAVIA IN THE GULF OF CALI- FORNIA.

BY LAURENCE M. HUEY.

MARKED advance has recently been made in searching out the secrets of the life history of the Surf-bird (*Amphriza virgata*). During the past year its nesting grounds have been located in Alaska, and previous work along the west coast of South America established its southernmost winter range. Its migratory movements, however, are not yet well defined. In North America, straggling birds have been taken, during the winter, from southern Alaska to San Diego. The largest flock that appears to be recorded in literature was at Santa Barbara and contained twenty-three birds (Dawson, "Condor," XV, pp. 5-8). The writer's surprise may therefore be imagined when, upon first viewing the water of the Gulf of California, near its head, at San Felipe, Lower California, on March 22, 1926, he saw a flock of about one hundred Surf-birds rise in compact mass from the rocky shore. At that moment he little realized that during his entire stay at San Felipe he was to come into intimate contact with this supposedly rare species. In fact, the birds later became so common that the thrill of seeing them passed and they were given no more attention than other shore birds. On April 16, evidently the peak of the migration, the greatest abundance was observed, when a flock of at least eight hundred individuals was seen congregated on the rocky shore above the village. On the last tramp along the waterfront, April 24, before leaving San Felipe, a flock of forty was seen. They seemed always to prefer the rocky shore line near the wash of the waves—if there were any waves, for on quiet days the Gulf waters seemed to rise and fall with scarcely a ripple. This rock-haunting habit seems to be recorded in practically all references to the Surf-birds.

The discovery of such a mass of transient Surf-birds, bottled up, so to speak, at the head of the Gulf, sets one to pondering as to where they go from there. Birds of near relationship are known to make long uninterrupted flights. The Golden Plovers, both of

the Pacific and Atlantic seaboard, are said to take 2,000-mile "hops." But the long flights of the Golden Plovers are over the level surface of the ocean, while the great flocks of Surf-birds in the upper end of the Gulf of California were surrounded by bleak, barren deserts and high mountain ranges in every direction, rendering the problem even more perplexing. Black Turnstones, which share the Surf-birds' niche in habits, are found regularly all along the western coast on their migrations and even during the winter. To be sure, straggling Surf-birds, too, have been recorded, but it is this mass assemblage with which we are at present concerned and the direction of their flight. Surely such assemblages could not have passed along the western coasts regularly for the past half century without having been seen by some competent collector. Can it be that this was one of the last points of contact of this species with its winter range, and that the next stopping place of the great Surf-bird flocks is in the neighborhood of their breeding grounds? Frank Stephens states that he has seen flocks of Surf-birds in Alaska.

Other migratory sea and shore birds, which follow up the placid waters of the Gulf of California on their northward migration, also offer an interesting problem in the matter of routes. Perhaps some of the Curlews and Sandpipers continue along the Colorado River or through the irrigated valleys of the western states to their inland nesting grounds.

As to Pacific Loons (*Gavia pacifica*) which were not uncommon at San Felipe, certain observations shed light on their northward route. It happened that, during the period between April 16 to 20, the writer, in making collections for the San Diego Society of Natural History, was occupied in running a line of mouse traps several miles back from the shores of the Gulf and it was necessary to be abroad as early as light would permit. At this early hour during the above-mentioned days, the whistle of wings was several times heard overhead, well inland. All of the birds observed that were close enough for identification proved to be Pacific Loons. The interesting feature was not so much the presence of the birds as the direction of their flight, for they were headed straight for the high mountains to the westward and directly away from the shore line of the Gulf. Oddly enough they were observed only during the

early morning hours, either before or about sunrise, in spite of the fact that, after the first observation of their peculiar flight direction, a sharp lookout was kept for mid-day movements. Like the Surf-birds, the Loons faced bleak, barren deserts and high mountain ranges before reaching their summer home, although, to be sure, the course they were on would take them to the waters of the Pacific in less than a hundred miles of flight. We hardly credit birds of the Loon family with the ability to fly to such altitudes as were ahead of those taking the overland route westward from the Gulf, for in but a single place west and toward the north of San Felipe, can a pass be found lower than 3,200 feet in elevation. This pass, between the Sierra San Pedro Martir and Sierra Juarez, is fairly narrow and is in a direction far from the course that the west-bound birds appeared to be following, necessitating the crossing of even longer stretches of torrid deserts, which at this season were at a most uninviting temperature.

Natural History Museum,

Balboa Park, San Diego, California.

BIRDS OF THE ISLAND OF ANGUILLA, WEST INDIES.

BY JAMES L. PETERS.

THE island of Anguilla is the northern-most of the so-called Leeward Islands group of the Lesser Antilles. It is a British possession, included in the presidency of St. Kitts. The local affairs are presided over by a magistrate. Among zoölogists Anguilla is well known as the place where that strange fossil mammal *Amblyrhiza inundata* was discovered. It has, however, been very little visited by ornithologists. In fact, the only accounts of the birds that I have found are:—a nominal list by Cory, ('Auk', 8, 1891, p. 46) of thirteen species taken by Cyrus S. Winch during the spring of 1890, and an annotated list by P. L. Slater of sixteen species collected by W. R. Elliott in March 1892 (P. Z. S., London, 14 June, 1892, pp. 498–500).

I spent two weeks (from February 1 to 13, 1922) on Anguilla in the interests of the Museum of Comparative Zoölogy. The voyage was made by sailing vessel from St. Kitts. Leaving there in the sloop *Ismay* on January 30, light winds prolonged the usual length of the passage, and it was not until eight o'clock on the morning of February 1 that we dropped anchor in Road Harbor. Since the only accommodations for strangers on Anguilla are at Crocus Bay, four miles further west, I landed there with my equipment after a short beat from Road Harbor, and thanks to the activity of Dr. Jones, the local magistrate, I was installed in a house and ready to begin work that same afternoon.

PHYSICAL FEATURES.

Anguilla is approximately twelve miles long and from two to four miles wide; its long axis running from north-east to south-west. On the north it rises sharply from the sea, the cliffs attaining a maximum elevation of about 200 feet, thence the island slopes off to the southward. Its outline is extremely irregular. The coast line on the north alternates rocky headlands with sandy beaches; on the south low stretches of coralline rock are in turn relieved by sand. The surface is entirely of aeolian limestone with here and there "pockets" of red earth where the inhabitants grow their staple crops of "Pigeon Pea" and Sea Island Cotton.

The rest of the surface of the island is covered with a growth of thorny shrubs, mainly *Acacias*; a species of *Croton*, a variety of cacti including *Cereus*, *Opuntia* and *Melocactus*; Agaves (*Fourcroya*) are very numerous. Sandy ridges back of the beaches are covered over with beach grape (*Coccoloba*) and in sheltered situations back of the beach are small stands of manchineel (*Hippomane*). Along portions of the low-lying south shore are small muddy ponds fringed with a dense growth of mangroves; while in the centre of the island lies Caul's Pond, a large shallow lagoon frequented by large numbers of migrant shorebirds.

1. *Podilymbus podiceps* (Linné). PIED-BILLED GREBE.—Recorded by Cory, but not found during my stay.

2. *Phaethon aethereus* Linné. RED-BILLED TROPIC-BIRD.—Two males taken at Crocus Bay, February 9. This species occurred commonly about the sea-cliffs on the north side of the island.

3. *Pelecanus occidentalis occidentalis* Linné. WEST INDIAN BROWN PELICAN.—Rather common on the north side of the island, where they perch on stubs or jutting rocks well above the level of the water, to watch for small fry. Several were seen at Little Harbor, a small sheltered bay on the south side of the island. Pelicans are said to nest on Pelican Key, near the island of St. Martins.

4. *Fregata magnificens rothschildi* Mathews. MAN-O-WAR BIRD.—Seen occasionally, particularly during the early part of February, following a few days of unusually strong wind.

5. *Butorides virescens maculatus* (Boddaert). WEST INDIAN GREEN HERON.—This bird was found in a variety of locations: two or more frequented a cotton field at Crocus Bay and were seen or heard there daily during the entire period of my stay; another was flushed from dense acacia shrub; another from among the mangroves bordering a small pond on the south side of the island. On February 6 a female was taken in a dense thicket just behind a sandy beach on the north side.

6. *Nyctanassa violacea violacea* (Linné.) YELLOW-CROWNED NIGHT HERON.—A boy brought me a live example of this species. I am unable to distinguish West Indian examples of *Nyctanassa violacea* from those taken in North America; the characters ascribed to the southern form by Messrs. Bangs and Penard (Bull. M. C. Z. 52, no. 2, 1918, p. 31) appear to be entirely individual.

7. *Paecilornis bahamensis bahamensis* (Linné). BAHAMA PINTAIL.—Five of these ducks were found in a mangrove-fringed pond near Little Harbor on February 11. They were very wary and jumped out of gunshot.

8. *Falco peregrinus anatum* Bonaparte. DUCK HAWK.—A hawk's primary, found at the entrance of a wide mouthed, shallow cave in the sea-cliffs, proves upon comparison to belong to this species.

9. *Falco columbarius columbarius* Linné. PIGEON HAWK.—I took an adult male near Little Harbor on February 11.

10. *Falco sparverius caribearum* Gmelin. LESSER ANTILLEAN SPARROW HAWK.—Fairly common throughout the island. During early February the birds were paired but not ready to breed. This species was also collected by Winch and Elliott.

11. *Gallinula chloropus cachinnans* Bangs. FLORIDA GALLINULE.—Three Gallinules were taken in some low scrubby mangroves fringing the northern shore of Caul's Pond. A male shot on February 12 was without fat and with the spring moult hardly begun; a female killed at the same time was quite fat and at the height of the moult. Winch and Elliott both secured Gallinules on Anguilla. I cannot see how the specimens differ from Florida birds, each of the three finds its counterpart in North American examples. *G. c. portoricensis* Danforth (Auk, 42, 1925, p. 560) is based on characters that vary with age and season and in my opinion must be synonymized with *G. c. cachinnans*.

12. *Fulica caribaea* Ridgway.—Cory records this species as having been taken by Winch. I did not meet with it.

13. *Himantopus mexicanus* (Müller). BLACK-NECKED STILT.—A species taken by Winch, not met with by Elliott or myself.

14. *Numenius hudsonicus* Latham. HUDSONIAN CURLEW.—About a dozen Hudsonian Curlew frequented Caul's Pond; they were very active and noisy, also rather wary. As a rule they kept by themselves, mingling occasionally with the Yellow-legs. A female collected on February 7 was in good condition despite the advanced state of the spring moult.

15. *Actitis macularia* (Linné). SPOTTED SANDPIPER.—Not a very common winter visitant. I found it in small numbers in the vicinity of ponds and mud-holes, and sparingly along the beaches.

16. *Totanus flavipes* (Gmelin) YELLOW-LEGS.—Several flocks and scattered single birds, aggregating over 250 individuals were found at Caul's Pond.

17. *Totanus melanoleucus* (Gmelin) GREATER YELLOW-LEGS.—Much less common than the preceding species.

18. *Catoptrophorus semipalmatus semipalmatus* (Gmelin). WILLET.—Uncommon winter visitant. I saw one with a flock of Yellow-legs at Caul's Pond on February 7, and on the 11th three more at the same place. None were secured, but the probabilities are that only *C. s. semipalmatus* occurs in the Lesser Antilles.

19. *Pisobia minutilla* (Vieillot). LEAST SANDPIPER.—Probably an uncommon winter resident.

One was taken at Caul's Pond on February 12. It was in company with a large flock of small Sandpipers, that appeared to consist almost entirely of the following species.

20. *Ereunetes pusillus* (Linné.) SEMIPALMATED SANDPIPER.—The great majority of "Peeps" that I identified at Caul's Pond belonged to

this species. No close estimate of their number was obtainable, but there were probably at least 300 present. One was shot on February 12 for positive identification and record.

21. *Charadrius semipalmatus* Bonaparte. SEMIPALMATED PLOVER.—Several large flocks frequented the muddy shores of Caul's Pond. Their numbers aggregated between 300 and 400 birds.

22. *Octhodromus wilsonius rufinuchus* Ridgway. RUFIOUS-NAPE PLOVER.—Not uncommon resident. On February 2 I came upon a flock of 25 or more on a narrow beach at the southerly side of the island; a strong wind was blowing and they were loath to fly, preferring to stand head-on to the wind and when approached, to attempt concealment by squatting. A flock of 12-15 was seen at Caul's Pond on the 7th.

I have reverted to the familiar generic name of *Octhodromus* Reichenbach which in recent years has been replaced by *Pagolla* Mathews due to the misapprehension that the former name was preoccupied by *Ochthodromus* LeConte. Furthermore, for reasons stated long since (Peters Bull. M. C. Z., 51, 1917, p. 405) I continue to recognize *rufinuchus* as a separable race. Additional West Indian material but strengthens my belief in the validity of the form.

23. *Oxyechus vociferus rubidus* Riley. ANTILLEAN KILLDEER.—Uncommon. On February 7 a flock of eleven was counted in a dry open field. The birds took wing before I could get within gun shot.

24. *Pluvialis dominicus dominicus* (Müller). GOLDEN PLOVER.—A solitary bird appeared at Caul's Pond, February 12. It stood in a wide expanse of shoal water at the western end of the pond where it was impossible to stalk, and finally escaped. The bird was satisfactorily identified however, both in flight and at rest and gave its characteristic call several times.

25. *Squatarola squatarola* (Linné). BLACK-BREASTED PLOVER.—A flock of about fifty "Beetleheads" was present at Caul's Pond, on February 5, and again two days later. On the 12th only a half dozen remained; the rest having sought other feeding grounds.

26. *Arenaria interpres morinella* (Linné). RUDDY TURNSTONE.—A little band of twenty Turnstones frequented Caul's Pond.

27. *Chaemepelia passerina trochila* Bonaparte. MARTINIQUE GROUND DOVE.—Two males of this common resident were taken. It occurs in small flocks all over the island, particularly in bushy situations.

28. *Zenaida aurita aurita* (Temminck and Knip). MARTINIQUE DOVE.—This species was found less commonly than the ubiquitous Ground Dove. The usual haunts were the small clumps of manchineel near the shore, though a few birds were found in the bushy interior.

While *aurita* is commonly regarded as a distinct species from *zenaida*, I cannot find any trenchant characters upon which to continue this view, the birds from the Greater Antilles intergrading with those from the Lesser Antilles by individual variation, in fact the specimen taken on Anguilla February 4 is such an example.

The forms of *Zenaida aurita* worthy of recognition are:—

Zenaida aurita aurita (Temm. and Knip).

Zenaida aurita zenaida (Bonap).

Zenaida aurita yucatanensis Salvadori.

Zenaida z. lucida Noble, and *Z. spadicea* Cory must be synonymized with *Z. a. zenaida*.

29. *Megaceryle alcyon alcyon* (Linné). KINGFISHER.—A few Kingfishers winter on Anguilla. I saw one on the southerly side of the island February 2 and on the 9th one about the cliffs at Crocus Bay. This is one of the species taken by Winch in the spring of 1890.

30. *Orthorhynchus exilis exilis* (Gmelin). GILT-CRESTED HUMMER.—A common resident. For the most part, I found it about the settlements, particularly in the plantings of "Pigeon Pea." It also occurred in sheltered spots near the southerly side of the island. Five males and a female were taken.

31. *Sericotes holosericeus holosericeus* (Linné). GREEN CARIB.—Resident, less common than the preceding species. This large Hummer was not found in close association with its small relatives, but was generally to be found in the vicinity of the agaves and the blossoms of the opuntia.

Two males secured were both undergoing a moult of the body feathers.

32. *Tyrannus curvirostris vorax* Vieillot. LARGE-BILLED KINGBIRD.—I found this species common throughout the areas of cultivation and about houses. Examples of *T. curvirostris* from Anguilla have been referred to the typical form by both Cory (Auk, 8, 1891, p. 46) and Ridgway (Bds. No. and Mid. Am., 4, 1907, p. 708). In identifying a male and a female from Anguilla I carefully compared and measured a series of *T. curvirostris* from nearly every West Indian island, well over 100 skins in all, and find that the characters separating the two forms are not nearly as well marked or constant as has been generally supposed. Extremes of either race are readily recognizable at a glance, but between these limits there is a wide range of individual variation forming a perfect chain of intergradation.

The range of *T. c. curvirostris* in the West Indies includes the Bahamas, Cuba, and Isle of Pines, Caymans, Jamaica, Haiti, Porto Rico and the Virgin Islands. The characters are: Paler gray above, grayish breast band paler and less well defined; bill averaging 25.5 to 33.75 (measured from base of forehead) width at frontal antiae, 13–16 mm. *T. c. vorax*, darker gray above, grayish breast band darker and more clearly defined; bill averaging larger, 31–35; width at frontal antiae 15–18; Anguilla to Grenada.

Specimens from the Leeward Islands (Anguilla, St. Kitts, Nevis) are intermediate, but are best placed with *vorax*. In any event such an intermediate race is too poorly marked to merit recognition.

33. *Elaenia martinica riisii* Sclater. ST. THOMAS ELAENIA.—Not uncommon in the brushy tracts throughout the island. Eight specimens

were secured, which undoubtedly should be referred to *riisii* rather than to *martinica*.

34. **Margarops fuscatus fuscatus** (Vieillot). PEARLY-EYED THRASHER.—Uncommon, an inhabitant of the dense thickets. Two males were collected, neither of which showed any sign of breeding. Both birds are quite typical of *M. f. fuscatus*.

35. **Dumetella carolinensis** (Linné). CATBIRD.—Winch secured a Catbird on Anguilla. The bird was doubtless a mere straggler since the species does not ordinarily occur in the West Indies on migration outside of the Bahamas, Cuba, and the Caymans.

36. **Setophaga ruticilla** (Linné). REDSTART.—Two males and a female were observed during my two weeks stay.

37. **Seiurus noveboracensis** subsp.? WATER THRUSH.—I heard a Water Thrush near Kettle Harbor on February 11, and succeeded in "squeaking" the bird up to within a few feet, so close that I missed him completely in trying to shoot him with the "edge of the load." Since both *S. n. noveboracensis* and *S. n. notabilis* occur in the West Indies during the winter, positive subspecific identification cannot be made in the absence of specimens.

38. **Seiurus auropigillus** (Linné). OVENBIRD.—Uncommon winter visitant. I met with it first on February 6, when I shot a female. One was also seen on February 11.

39. **Dendroica discolor** (Vieillot). PRAIRIE WARBLER.—This Warbler appears to be a fairly common wintering species. I found it in nearly all situations in numbers varying from 2 to 6 each day. A male was collected on February 2 for positive identification.

40. **Dendroica petechia bartholemica** Sundeval. ST. BART'S GOLDEN WARBLER.—Common resident, occurring in practically all situations on the island, appearing equally at home among the mangroves or bushy thickets. On February 8, and again on the 13th I shot a pair of these Warblers, apparently mated, but showing no signs of breeding.

41. **Compsothlypis americana pusilla** (Wilson). NORTHERN PARULA WARBLER.—Two or three were seen near Little Harbor on February 11, and a male secured for positive identification.

42. **Coereba bartolemica bartolemica** (Sparmann). ST. BART'S BANANAQUIT.—A very common resident. I found these honey creepers particularly numerous just back of the beaches on the southern shore. There they fed on the ripe fruit of the common *Opuntia* in which they had pecked holes to extract the soft pulp. In consequence they were stained about the head, and the intestines and abdominal walls were likewise discolored by the juice.

43. **Pyrhulagra noctis ridgwayi** Cory. ANTIGUA BULLFINCH.—Common resident. The Red-breasted Sparrow, as this bird is locally known, is a confiding species, common about buildings and gardens and sometimes coming in through the open doors and windows to pick up crumbs from the floor or table.

Six adult males agree in coloration with an adult male of *P. n. ridgwayi* from Antigua which I have examined through the courtesy of Dr. C. W. Richmond of the U. S. National Museum.

In the absence of adults from Barbuda I am unable to determine whether *Loxia chazaliei* Oustalet (Bull. Soc. Zool. de France 20, 1895, p. 184, Barbuda) is identical with examples from Antigua. Should *Pyrrhulagra*s from Antigua and Barbuda prove to be identical, Oustalet's name will stand, having three years priority over Ridgway's, and the birds from Antigua, Barbuda and Anguilla will become *Pyrrhulagra noctis chazaliei* (Oustalet).

On geographical grounds one would expect the representative of *P. noctis* found on Anguilla to be *P. n. coryi* Ridgway (Auk, 15, 1898, p. 323, St. Eustatius), but comparison with a nice series of topotypes proves that this is not the case.

44. *Tiaris bicolor omissa* (Jardine). CARIB GRASSQUIT.—A common resident, found in small flocks during my stay, both in bushy situations and in the cultivated sections. All specimens taken were undergoing the prenuptial moult.

Museum Comp. Zool.
Cambridge, Mass.

NOTES ON THE BIRD-LIFE OF MONA AND DESECHEO ISLANDS.

BY PARKE H. STRUTHERS¹.

DURING the summer of 1926 the first of a series of Caribbean Expeditions, sponsored by friends of Syracuse University and directed by a member of the Zoology Department, visited Porto Rico and the small islands lying in the Mona Passage. One of the main objects of the trip was to study the bird-life of these isolated islands. The observations which were made form the subject matter of this paper. Our stay on Mona and Desecheo extended from June twenty-third to July eighteenth, which allowed sufficient time to make a rather careful survey of the islands and note the habits of the birds found there. A report of the bird-life on Desecheo should be of interest to ornithologists, since this tiny bit of desert land in the South Atlantic is one of our United States bird reserves which is too remote to boast of a resident warden and is practically never visited by nature students. Mr. B. S. Bowditch and Dr. Alexander Wetmore are the only ones who have published on its bird life.

The past summer the islands of this region experienced very unusual climatic conditions; a period of extreme drought killed much of the vegetation and this was followed in July by a severe tropical hurricane which increased the destruction of trees and bushes which offer nesting places for the birds. These conditions, although not affecting the marine birds, must have delayed the breeding season and reduced the population of resident land birds.

The following discussion deals with twenty species of birds found on the islands during our visit. Fortunately specimens of each species were collected, so that careful identification could be made. The nesting birds were very tame, making it comparatively easy to get moving pictures illustrating their breeding habits. The following account deals with the birds in their taxonomic order.

¹ Director of the Caribbean Expedition of 1926.

Phaethon americanus Grant. **YELLOW-BILLED TROPIC BIRD.**—Several hundred of these beautiful sea-birds were found nesting high up on the limestone cliffs bordering the west and north coasts of Mona Island. The breeding season was apparently at its height for all stages from newly laid eggs to the fully plumed, speckled black and white young were observed. It was a beautiful sight to stand on the edge of the cliffs three hundred feet above the sea and watch, these pure white birds with long tail streamers, gliding about over the green tinted waters of the Caribbean. No Tropic birds were seen about Desecheo.

Pelecanus occidentalis occidentalis Linnaeus. **WEST INDIAN BROWN PELICAN.**—A flock of Pelicans consisting of adults and young still unable to fly made their home about the coral lagoon near Sardinero beach. A small rookery consisting of four nests was found along the shore south of West Point, the nests being placed in the tops of the West Indian birch (*Elaphrium simarubra*). The protected lagoon is shallow and abounds with an abundance of fish on which the Pelicans feed. Apparently the breeding season corresponds with that in Porto Rico, occurring in February and March. Previous observers state that this species was not found about Mona (Wetmore, 1916, p. 18). It is an interesting fact that within the last ten years the lagoon at Sardinero beach has been changed, from a deep and unprotected bay partially surrounded by a barrier reef, to an almost completely enclosed lagoon, which, due to the rapid accumulation of sand, is so shallow in places that it is not possible for a rowboat to pass at low tide. The Pelicans have taken advantage of this geological change, enjoying here an ideal home free from dangers and supplied with an abundance of food. This species was not found on Desecheo.

Sula piscator (Linnaeus). **RED-FOOTED BOOBY.**—No Red-footed Boobies were seen about Mona, but on Desecheo they occupied a region along the south shore about five hundred feet east of where the author found it in 1922. This change was made necessary by the fact that the natives living on the island have cut down the trees and put a garden where the rookery was formerly located, in order to take advantage of the soil made rich by bird excrement. The new rookery seemed considerably larger and better protected due to the presence of a deep ravine which separates it from the trail leading to the inhabited part of the island. Although the nesting season had passed the adults in white plumage and the young birds of a brownish color were roosting in the vicinity of the old nests. They were very tame, allowing us to climb the trees and photograph them without the least sign of fright.

Sula leucogastra (Boddaert). **BOOBY.**—This species was found both on Mona and Desecheo, but the breeding season was over for only one young in the teddy-bear-like down plumage was seen. Either these birds had departed after the nesting season or else they were breeding there in much smaller numbers, for instead of counting them by the thousand, as the author did in 1922, they could be counted only by the hundred. Unfortunately there are several natives now living on Desecheo

and they take the eggs of this bird for food. The island is overrun with a large species of snake resembling the Garter snake, which must destroy many eggs and young.

Fregata magnificans rothschildi Mathews. MAN-O-WAR BIRD.—The Rabijunco, as the natives call this bird, was common about both Mona and Desecheo. The breeding season was past and the rookeries abandoned, but all day long the birds were seen soaring high in the heavens, sometimes in groups of four or five, but more often it was a single bird patrolling above a Tropic Bird, waiting for a chance to rob it of a fish. The method of feeding is very interesting to watch. The Man-o-War bird from its position high in the sky will wait until the Booby or Tropic bird has made a catch, then with a sudden dive it swoops down on the unsuspecting fisherman. A hot chase always follows but the Man-o-War invariably overtakes the smaller bird, which in order to save itself will drop its catch. Immediately the chase ends and the Man-o-War bird, with a gracefully maneuvered swoop, snaps up the desired delicacy before it reaches the water. Just at dusk the Man-o-War birds were seen to congregate outside the reef, where they would soar close to the sea in search of fish, showing that all their food is not obtained in a pirate-like fashion.

Nyctanassa violacea (Linnaeus). YELLOW-CROWNED NIGHT HERON.—This species was quite common in the cocoanut grove near Sardinero beach. At night their guttural call was commonly heard back of the camp and on moon-light evenings they could be seen walking along the beach bordering the lagoon in search of fish. One young bird was taken in the middle of the day while feeding in the shallow water of the lagoon. This species seems to be a regular resident on Mona Island for Bowditch (1902-3, p. 359) speaks of seeing it.

Himantopus mexicanus (Muller). BLACK-NECKED STILT.—Although this species has not been previously reported on Mona, we found it common about the lagoon. They frequented the sandy beaches and shallow water near West Point, where an abundance of small fish were to be found. When alarmed they would seek the protection of the reef, standing like statues on some partly exposed rock unmindful of the heavy surf. The birds were not nesting at the time of our visit, but it seems probable that they may have nested there for the dry sand beaches offered excellent nesting places and the natives living on Mona state that this flock had been there for a long time. Doubtless this flock was simply a group of visitors for the absence of marshes make Mona an unsatisfactory place for this species to live permanently.

Larus atricilla Linnaeus. LAUGHING GULL.—These Gulls were continually passing up and down the coast past our camp. Their trim bodies, strongly sustained flight and incessant scolding attracted much attention. They were not breeding at the time of our visit, but the presence of immature birds indicated that the nesting season had just passed. About five hundred individuals were seen on Desecheo.

Anous stolidus stolidus (Linnaeus). NODDY.—The Noddy was very common along the cliffs at Mona, especially in the vicinity of West Point, where several hundred were nesting. The eggs were placed in a depression among the rocks, without a sign of a stick or feather to indicate an attempt at nest building. The males assisted in incubation and caring for the young. This species was also nesting on Desecheo, its eggs being placed on a low shelf of rock near the top of an over-hanging cliff.

Sterna anaetheta Scopoli. BRIDLED TERN.—This species was not seen about Mona and only a very few individuals were noted on Desecheo. Previous observers found it common on both islands. Wetmore (1916, p. 46) states that he found fifteen hundred individuals of this species nesting on Desecheo in June (1912), while Bowditch (1902-3, p. 357) found them common on both Mona and Desecheo.

Sterna fuscata Linnaeus. SOOTY TERN.—This Tern was found very common on Desecheo and Mona islands. It was nesting in the same localities as the Noddy, in many places the nests of the two species being placed within three feet of each other. The nesting season was, however, slightly more advanced than that of the Noddy for most of the nests had a young bird. The adults showed very little fear on our approach and it was possible to make some very interesting moving pictures of the nesting habits. The young birds look much like Brown Leghorn Chickens. Each youngster was given the undivided attention of both parents, one remaining about the nest while the other was foraging for food.

Geotrygon montana (Linnaeus). RUDDY QUAIL DOVE.—One specimen of this species was collected in a thicket on the coastal plain at Mona. This is the first record for the species from Mona, but it undoubtedly is found there as a visitor during the summer for the natives were acquainted with the bird and said it sometimes nested there.

Chaemepelia passerina exigua Riley. MONA GROUND DOVE.—This tiny Dove was abundant all over the island of Mona, found usually in pairs, although in favorable feeding localities, groups of fifty or more were seen. They were very tame, especially on the plateau where they would run along the trail ahead of us until overtaken, when they would step aside to let us pass. They were undoubtedly nesting as well developed eggs were found in female specimens. This Dove is somewhat smaller and of a paler color than the Porto Rican Ground Dove.

Zenaida aurita zenaida (Bonap.). PORTO RICAN DOVE.—During our stay on Mona we found this species very abundant, especially on the plateau, where the birds were nesting. The nests were placed among the vines which cover the trunks of the trees and large cactus plants. Although more often heard than seen it was by no means uncommon to see these Doves sitting on some dead limb, craning their necks to better the view. The mournful "coo-coo" of this *Tortula* was as much a part of Mona as the cactus covered cliffs. Their food seemed to consist wholly of seeds from the leguminous plants.

Columba leucocephala Linnaeus. WHITE-CROWNED PIGEON.—It is a pleasure to report that this large Pigeon, although not previously reported from Mona, was found nesting on the plateau by the thousands. Gundlach refers to this Pigeon as being common in the seventies on Porto Rico, but Wetmore (1916, p. 53) states that in 1912 it was found in only a few localities. The author observed the same condition of scarcity on Porto Rico in 1922. Both at sunrise and sunset flocks numbering as high as five hundred individuals were seen approaching Mona from the direction of Santo Domingo. Many of these birds were collected and several had the seed of the royal palm in their crops. As this palm was not found on Mona these birds must have migrated recently. Due to the almost impenetrable undergrowth on the plateau the Pigeons nest in comparative safety. The natives say that the Pigeons all leave in October.

Coccyzus minor Gmelin. MANGROVE CUCKOO.—This Cuckoo, although not previously reported from Mona was seen on several occasions both on the plateau and the coastal plain, inhabiting the shrubbery bordering the trails. The birds were very timid and it was difficult to observe their habits, or to ascertain whether or not they were nesting. They were always observed in pairs and they seemed to frequent the same localities.

Tyrannus dominicensis (Gmelin). GRAY KINGBIRD.—This Flycatcher was seen on several occasions both on the arid plateau and in the bushes bordering the trails which cross the coastal plain. It was always found in pairs, but no indication of nesting was seen. The natives say it lives on Mona and without doubt it represents one of the resident species.

Progne dominicensis (Gmelin). CARIBBEAN MARTIN.—Individuals of this species were observed frequently during our stay on Mona, in the vicinity of the cocoanut grove, where they perched on the palm leaves, occasionally leaving their shady retreat to soar after a passing insect. A young female was collected near our camp on June thirtieth.

Margarops fuscatus fuscatus (Vieillot). PEARLY-EYED THRASHER.—This species inhabits all parts of Mona island and represents one of its most characteristic birds. Its caroling was the first bird note to greet us on landing and throughout the stay this large brown Thrasher was seen on every side. One would find them angrily quarreling among themselves in the cocoanut grove; again one would be found in some somber nook among the rocks flitting about like a phantom spirit, or again they were encountered along the trail searching through the undergrowth for seeds or an occasional insect. No indication of nesting was seen.

Agelaius xanthomus (Scater). YELLOW-SHOULDERED BLACKBIRD.—This Blackbird seemed to be quite common for it was seen almost daily on the trips to the plateau or along the coastal plain. It was always found in pairs actively engaged in working through the low bushes search-

ing for insects. No indication of nesting was seen, but the species is probably resident on Mona for it has been previously observed on the island and the natives say it stays there all the year.

The status of the bird-life on Mona and Desecheo, judging from the information obtained the past summer together with that of previous observers, varies considerably throughout the year. There are twelve resident species living on Mona, while Desecheo has three species of marine birds, which are resident. During the summer six species visit Mona to nest, one of which the White-crowned Pigeon represents a tremendous influx of bird life. This pigeon is of considerable food value and it should be carefully protected during the breeding season. Several species of Terns and the Laughing Gull visit Desecheo to nest, but apparently in much smaller numbers than formerly. Due to the geographical position of these islands one would expect to find a few species of migratory birds driven there by storm or staying there temporarily before continuing their flight to one of the larger islands of the Caribbean Sea, where a suitable habitat may be found. Illustrations of such an occurrence would be the Black-necked Stilt and possibly the Pelican.

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SUMMER BIRDS ON MOUNT MAGAZINE, LOGAN
COUNTY, ARKANSAS.¹

BY W. J. BAERG.

MAGAZINE Mountain² represents the highest elevation in the State of Arkansas, rising to an altitude of 2830 feet. The valleys in its vicinity have an altitude of about 350 feet. The summer bird population presents some unusual features which seem to be of interest. The Oven-bird is very common on top of the mountain; it does not occur south of the mountain, nor is it very common even as far north as Fayetteville (about 100 miles). The Scarlet Tanager is very common on top of the mountain and is decidedly rare in the neighborhood of Fayetteville. The Orchard Oriole does not occur on top, but may be found at least as far south as Texarkana. Other birds either rare or not occurring on top and common south of Mount Magazine are the Mocking-bird, Cardinal, Blue-gray Gnatcatcher, White-eyed Vireo, and Field Sparrow.

The top of the mountain is a nearly level plain, sloping gradually from west to east. This account deals mainly with birds found on the top, which area is shaped somewhat like a triangle, less than a quarter of a mile in width at the apex, about one and three-fourths miles long, and about a mile in width at the base. The top of the mountain is but sparsely populated. A few families, three or four, that like a very quiet life, come there for the summer. There are small cleared areas around the cabins. On the eastern slope, about five miles from the west end, are small farms, but even here most of the land is in woods.

The altitude of Mount Magazine, if expressed in degrees Fahrenheit, would represent about 7.50 degrees less than that of the surrounding valleys, and if this be expressed in latitude, it comes at a place about 450 miles to the north. The summer bird population, however, corresponds, as it seems to me, to conditions farther north than 450 miles.

The most significant feature in the climatic conditions on the

¹ Research Paper No. 70, Journal Series, University of Arkansas.

² For information regarding the geology and temperature relations of the mountain, I am indebted to Mr. C. G. Cronels of Harvard University.

mountain is the strong southerly breeze that blows throughout the afternoon and night, about twenty-eight days out of thirty. The breeze is apparently due solely to the exposed position of the peak. This breeze further decreases the "sensible temperature," if not the real temperature, by evaporation. As is well known, the reduction of the "sensible temperature," so far as physiological processes are concerned, has the same effect as a reduction of the real temperature.

The observations were made in 1925 on June 13 and 14, and in 1926 on June 13, 14, and 15. Identifications were made with the aid of a Zeiss prism glass, 6x. A collecting gun was carried, in case it was necessary to secure specimens for identification.

Colinus virginianus virginianus. BOB-WHITE.—Quite common. Several small cleared areas offer favorable breeding and feeding grounds.

Zenaidura macroura carolinensis. MOURNING DOVE.—Not common on top, only two birds were seen there. It is more numerous in the valleys.

Catharista urubu. BLACK VULTURE.—Frequently seen. During the middle of the afternoon it may often be observed in the air, apparently standing completely still, just over the southern edge of the mountain. It seems that the strong breeze from the south plays an important role in this manner of soaring.

Buteo borealis borealis. RED-TAILED HAWK.—This was the only Hawk observed on the mountain.

Coccyzus americanus americanus. YELLOW-BILLED CUCKOO.—Only one was seen on top; several were observed on the side and at the foot of the mountain.

Dryobates villosus villosus. HAIRY WOODPECKER.—Occurs in small numbers on top as well as on the slope.

Dryobates pubescens pubescens. SOUTHERN DOWNY WOODPECKER.—Common on top as well as on the slopes.

Phloeotomus pileatus pileatus. PILEATED WOODPECKER.—One pair observed on top of the mountain.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER.—One pair observed about half way down the mountain.

Colaptes auratus auratus. FLICKER.—Was not observed on top; a few were seen on the slope and at the foot of the mountain.

Archilochus colubris. RUBY-THROATED HUMMINGBIRD.—Several were seen on the mountain.

Myiarchus crinitus. CRESTED FLYCATCHER.—Common on top and occurs also on the slopes.

Sayornis phoebe. PHOEBE.—Is fairly common both on top and on the sides of the mountain. The cliffs and springs offer good building sites.

Myiochanes virens. WOOD PEWEE.—Numerous on top and common on the way down.

Empidonax virescens. ACADIAN FLYCATCHER.—Only one was observed and it was near the foot of the mountain.

Cyanocitta cristata cristata. BLUE JAY.—Apparently uncommon; only two were seen.

Molothrus ater ater. COWBIRD.—Not seen on top. One was seen on the side.

Icterus spurius. ORCHARD ORIOLE.—Does not occur on top of the mountain, but is common in the adjacent valleys. Contrary to my expectations, the Baltimore Oriole likewise was not found on the mountain.

Astragalinus tristis tristis. GOLDFINCH.—Common on top as well as on the sides of the mountain.

Chondestes grammacus grammacus. LARK SPARROW.—Occurs in small numbers on top, more numerous in the valleys.

Spizella passerina passerina. CHIPPING SPARROW.—Occurs on top, as well as on the slopes.

Spizella pusilla pusilla. FIELD SPARROW.—Apparently is not present on the mountain. Is fairly common in the valleys.

Cardinalis cardinalis cardinalis. CARDINAL.—On the mountain is conspicuous by its scarcity. Apparently only one or two pair are on the mountain. It is more numerous part way down and in the valleys.

Passerina cyanea. INDIGO BUNTING.—Is numerous on top as well as on the sides of the mountain.

Piranga erythromelas. SCARLET TANAGER.—This is the most interesting feature of the bird population on the mountain. In the neighborhood of Fayetteville (100 miles north of Mount Magazine), even on adjacent hills rising to an altitude of 1750 feet, the Scarlet Tanager is decidedly rare. In some years I have succeeded in locating a pair in these mountains, in other years the birds do not seem to nest here. On Mount Magazine the Scarlet Tanager's song is almost the dominant one, second only to that of the Oven-bird. Probably eight or ten pairs of Scarlet Tanagers nest on the relatively small area of the mountain top. They occur also on the north side of the mountain, down to 300-400 feet from the top. On the east slope, although this is very gradual, they apparently do not extend as far down.

Piranga rubra rubra. SUMMER TANAGER.—Very common in the valleys, but does not extend to the top of the mountain. On the way down the first one was seen on the first bench below the top.

Vireosylva olivacea. RED-EYED VIREO.—Common on top, but more so on the sides of the mountain.

Lanivireo flavifrons. YELLOW-THROATED VIREO.—Occurs in small numbers on top and on the sides of the mountain.

Vireo griseus griseus. WHITE-EYED VIREO.—Is conspicuously rare on the mountain, but one was observed.

Mniotilta varia. BLACK AND WHITE WARBLER.—Occurs on top and on the sides of the mountain, but is relatively uncommon.

Helmitheros vermivorus. WORM-EATING WARBLER.—Occurs in small numbers on the mountain, only one was seen.

Dendroica vigersi vigersi. PINE WARBLER.—There is a sufficient growth of pines on the mountain sides to attract this Warbler in considerable numbers. It was not found on top.

Dendroica discolor. PRAIRIE WARBLER.—Fairly common in the second growth in cleared areas on top, and observed also on the slopes.

Selurus auroparillus. OVEN-BIRD.—So far as song is concerned, this is the dominant bird on the mountain. More than ten pair nest in a small area there. They occur on the sides only as far as about half way down.

Oporornis formosus. KENTUCKY WARBLER.—Is fairly common on top as well as on the sides of the mountain.

Geothlypis trichas trichas. MARYLAND YELLOW-THROAT.—Was not seen on the mountain, but a few individuals were observed on the eastern slope near the top.

Icteria virens virens. YELLOW-BREASTED CHAT.—Occurs in small numbers, two or three pairs on top.

Wilsonia citrina. HOODED WARBLER.—Occurs on the sides just below the top. Three pairs were observed.

Mimus polyglottos polyglottos. MOCKINGBIRD.—Does not occur on top of the mountain. It is the most conspicuous singer at Blue Mountain, a small town at the foot of the mountain.

Thryothorus ludovicianus ludovicianus. CAROLINA WREN.—Is heard, though not very commonly, on top as well as on the slopes.

Thryomanes bewicki bewicki. BEWICK'S WREN.—Is not found on top, but occurs at the foot of the mountain.

Sitta carolinensis carolinensis. WHITE-BREASTED NUTHATCH.—Is fairly common on the slopes.

Baeolophus bicolor. TUFTED TITMOUSE.—Was observed on top as well as on the sides of the mountain.

Penthestes atricapillus atricapillus. CHICKADEE.—Occurs on the mountain, but is relatively uncommon.

Polioptila caerulea caerulea. BLUE-GRAY GNATCATCHER.—Was seen only at the foot of the mountain and on the road toward the top.

Hylodichla mustelina. WOOD THRUSH.—Common on top, about eight pairs were observed in a small area.

Planesticus migratorius migratorius. ROBIN.—Is fairly common in the town of Blue Mountain, but rare on top of the mountain.

Sialia sialis sialis. BLUEBIRD.—Occurs in small numbers on top and on the sides of the mountain.

*University of Arkansas,
Fayetteville, Arkansas.*

NOTES ON THE COURTSHIP OF THE LESSER SCAUP,
EVERGLADE KITE, CROW, AND BOAT-TAILED
AND GREAT-TAILED GRACKLES.

BY CHARLES W. TOWNSEND.

***Marila affinis*, LESSER SCAUP.**

In his 'Life Histories of American Wild Fowl,' Mr. A. C. Bent states that "very little has been published about the courtship of this species." He quotes Audubon, who says that the males bow their heads and utter a kind of quack, and Wetmore,¹ who observed the conduct of a pair during courtship in New Mexico and carefully recorded it. He concluded that mating took place with both birds under water.

My observations agree with those of Wetmore, and as I saw the spectacular performance of over a hundred of these birds, it seems worthwhile to record it. At Sanibel Island on the west coast of Florida, the Lesser Scaup is abundant during the winter, feeding in large and small flocks in the Gulf of Mexico near the sand beaches, often among the breakers. They frequently come ashore with the wave and continue to feed eagerly until the wave receding leaves them lying flat on the sand. They then get up and walk towards the water until the next wave washes them in and provides them food as before. I saw no signs of courting among the flocks in the Gulf. On February 22, 1926, however, in a small shallow fresh water pond about a mile back from the shore, I came upon some of these Ducks evidently courting, and, from a concealed position, watched them for over half an hour. At first there were five groups of from ten to forty each, made up of both males and females, although the former were perhaps slightly in the majority. In each group the birds were crowded together, and were rapidly and nervously milling about in the way that shows at a glance that courting is in progress. At one time several groups joined together, forming a compact mass of fully seventy-five birds. The commotion was exceedingly great.

The males were continually diving and the females were diving

¹ Alexander Wetmore, 'The Auk,' 1920, vol. 37, pp. 244, 245.

nearly as frequently. The males often jumped clear of the water, made graceful curves and entered it with wings close to the sides, but the astonishing part was that, as they disappeared, spurts and sometimes sheets of water were sent up by their feet. I often saw several males dive almost immediately after a female disappeared. The consequence was that the entire group was partly obscured by the continuous splashing. It was a veritable orgie. The water about the group was muddy, contrasting with the clear but brown water of the rest of the pond. Both sexes frequently stood up and flapped their wings, and they often held their heads up and shook them. In the confusion of the excited mob, such details as the lowering of the crest and the drawing of the head downwards to the breast, described by Wetmore, could not be seen. The only notes I heard were low croakings, but the loud splashings may have obscured finer notes. On my return half an hour later, the birds were quietly preening.

***Rostrhamus sociabilis*, EVERGLADE KITE.**

In the marshes of the upper waters of the St. John River, Florida, on March 4, 1926, I watched three of these birds flying together. Presently one departed and the other two circled about, darting at each other from time to time. Occasionally one would turn on its side and stretch out its legs as if to grapple. After playing in this way for a short time, one of the Kites circled upwards and, reaching a considerable elevation, dove swiftly downwards with wings curved back, and then turned completely over, end to end. This maneuver was repeated several times, the bird crying out at the same moment in a bleating fashion very much like a sheep. Howell¹ describes similar maneuvers on the part of the Mississippi Kite.

***Corvus brachyrhynchos brachyrhynchos*, CROW.** The bowing, spreading slightly of the wings and tail, puffing out of body-feathers and the rattling song with head at first up and gradually lowered, I have already described and recorded², but a recent unusual opportunity for observation has added to my knowledge. Spending the nights in an open lean-to in my "forest," at Ipswich,

¹ Arthur H. Howell, "Birds of Alabama," 1924, p. 130.

² "The Voice and Courtship of the Crow," Bull. Essex County Ornith. Club, 1923, pp., 4-8.

I found myself listening every morning to the courtship song of the Crow close at hand, and, on May 3, 1926, I discovered from my bed that a pair had their nest in a white spruce twenty-five yards from me, so that I was able to watch them closely. At about four-thirty every morning I awoke to the rattling song of the Crow, and I often saw one flying about in irregular circles, singing and chasing another. Both alighted on trees, especially on the spruce, from time to time. The song was given in the air and from a perch, and once I heard it given as a whisper song. I also heard for the first time at the end of the rattle a pleasing sound which suggested the cooing of a Pigeon or the note of a cuckoo clock, but softer and more liquid. It was usually double—I wrote it down *coi-ou* or a single *cou*—and generally repeated several times, although sometimes given only once. These soft sounds, which I heard many times when the bird was near, generally followed the rattle, but were often given independently. When the bird was perched, he bowed and puffed out his feathers at the time of their delivery as during the rattling song. The cooing was also given in the air and on one occasion, I saw a bird drop slowly down with wings tilted up at an angle of forty-five degrees, singing as he fell. The rattle song was once given fifty-four times in succession, followed by a series of *cous*.

The female was at times very importunate, calling slowly *car car* like a young bird begging for food. If the male approached, the calling would become more and more rapid and end exactly as in the case of a young bird in a gurgle or gargle—*car, car, car, cowkle, cowkle, cowkle*. After mating the male would fly to the next tree and call loudly *caw-caw* several times. Occasionally the loud *wa-ha-ha-ha* was given. An examination of the nest made at this time showed three heavily incubated eggs.

A recrudescence of the song in the fall is common among all birds, and on and after August 21 I occasionally heard the rattling song, followed by the *cou* if the bird was near enough for me to hear the softer sound.

Megaquiscalus major major, BOAT-TAILED GRACKLE. When I was studying the song of the Boat-tailed Grackle in the South, I did not know that the mechanism of part of it had been discussed by Torrey, Wayne, Harper and Wetmore, so that my notes

made at the time were entirely unbiased. Although I find that my conclusions differ from those of all these authorities, I have ventured, nevertheless, to set them down here, but shall be glad to be corrected if I am wrong.

The part of the song to which I refer, appears to be made by the rattling or vibration of the primaries against themselves or the body of the bird. In other words, this part of the song appears to be instrumental, not vocal—to be wing-made. That was my first impression, and that seems to have been the first impression of all the observers mentioned. Mr. Wayne,¹ a most careful observer, had studied the bird for many years, and states definitely that the "birds with their wings make a loud rolling sound." Mr. Torrey,² however, began to have his doubts for he heard the sounds when the wings were motionless, and, moreover, he noticed a movement of the mandibles. "If the sounds are not produced by the wings," he says, "the question returns, of course, why the wings are shaken just at the right instant. . . . The reader may believe, if he will, that the bird is aware of the imitative quality of the notes, and amuses itself by heightening the delusion of the looker-on. My own more commonplace conjecture is that the sounds are produced by snappings and gratings of the big mandibles . . . and that the wing movements may be nothing but involuntary accompaniments of this almost convulsive action of the beak. But perhaps the sounds *are* wing-made, after all." Mr. Harper,³ who quotes Mr. Torrey as above, came independently to the same conclusion that the sound is not made by the wings, for he saw a bird produce the sound when the wings were motionless, but by the rattling of the mandibles, as he "could plainly see the bill in a sort of rattling motion." He quotes Dr. Alexander Wetmore as verbally confirming this theory from his own observation.

My first notes were made at Punta Gorda, Florida, on February 11, 1926, and I copy them verbatim: "The males are singing a fine high-pitched trill with great energy, moving their heads about

¹ Arthur T. Wayne, "Birds of South Carolina," 1910, p. 113.

² Bradford Torrey, "A Florida Sketch-book," 1894, p. 110.

³ Francis Harper, "The song of the Boat-tailed Grackle," 'The Auk,' 1920, Vol. 37, pp. 295-297.

with wide-open mouth and frequent winkings, apparently of the nictitating membrane. After two or three trills, they flutter their wings slightly, making instrumental music in the form of a rattle. Occasionally they emit a succession of clear notes something like that of a Robin calling." Later the same day and on several other occasions, I noticed that during the rattle the wings were sometimes moved but little or were motionless. Once or twice I saw one wing slightly elevated but not vibrated. I also heard the rattle many times given in flight, and there was no perceptible modification of the action of the wings at the time. I think it can be definitely stated, therefore, that the evidence eliminates the wings from any causative action of the rattle, although the vibratory movement is generally present and exactly synchronous with it.

So far Torrey, Harper, Wetmore and I are in agreement, but my observations lead me to think that the rattle is vocal, modified by throat vibrations and not made by the bill. My notes of March 24, 1926, made at Charleston, S. C., explain this. The bird was seen on a tree in a favorable light within twenty yards and studied with eight power prismatic glasses. "After three or four wheezy trills with bill wide open, he would partly close it and appear to gulp and the feathers of the throat vibrated as the guttural rattle was produced." I could see the bill vibrating also, but it did not occur to me then, nor does it seem probable to me now, that the bill made the sounds. The vibration of the throat would seem to point to its vocal origin. Certain parts of the song of the Purple Martin are very similar to this "guttural rattle," and the throat of the bird may in the same way be seen to vibrate. I observed this at Mr. Wayne's home.

Megaquiscalus major macrourus, GREAT-TAILED GRACKLE. At Brownsville, Texas, in December, 1925, I had excellent opportunities to watch this bird and was struck with the great variety of its clear and at times musical notes and songs mixed with others that were not so pleasing, all so different from the songs of the Boat-tailed Grackle. I have recorded them as a clear almost Flicker-like *week-it, week-it* and *see, see, see*; also a clear and pleasing *wheel, whit-a, whit-a, whit*, followed by *whee-ee-ee*, the last vibratory and pleasing.

The males also fought or, rather, pretended to fight with tails cocked up and wings partly spread, facing each other and sometimes flying up at each other like fighting cocks. But another very striking difference in the courtship of these two birds is the manner in which the male Long-tails pose, thus executing a form of dance. The head and neck are stretched up nearly vertically which gives them an absurdly attenuated look, and, when several males pose motionless facing each other in this position, the effect is very extraordinary. There is no hint of such actions in the courtship of the Boat-tailed Grackle.

The various subspecies of Song Sparrows differ no more in song than individuals of the same race do, and the same may be said of other subspecific races. On the other hand, birds that look so much alike as do the Gray-cheeked and Olive-backed Thrushes, but are in reality not closely related, have very different songs. I am lead to ask, therefore, whether the assumed sub-specific relationship between the Boat-tailed and the Long-tailed Grackles may be an error and that the birds are really of more widely separate stock and have spproached each other by parallel evolution.

Ipswich, Mass.

GENERAL NOTES.

Rare Alcidae in Barnegat Bay, New Jersey.—There was a notable flight of Alcidae to Long Island and New Jersey during December 1926 and January 1927. Mrs. Griscom and I spent the week-end of December 19 at Barnegat City, in the midst of a severe cold wave. Dawn found me at the lighthouse by the inlet, prepared for the morning flight. The bay was frozen, an ice mist swirled over the ocean, and I shivered in a temperature of 5 above zero. The inlet was crowded with Grebes and Gulls of five species, as the tide was racing in from the sea. Brant, Scaup, Mergansers and Old-squaws were passing every moment, and a Northern Shrike was attempting to sing in the bushes back of the lighthouse. Five minutes after my arrival a Brunnich's Murre followed by a Puffin flew in at long range, some Grebes just ahead, and some Old-squaws just behind. The slender bill of the Murre and the narrow white wing stripe were plainly visible. The much smaller size of the Puffin, the absence of a wing-stripe, the large head and buzzing flight were noticed. A little later a Razor-billed Auk flew in at moderate range, the deep bill plainly noticeable, also the greater extension of white back of the eye, and the clouded effect. A lull of half an hour then ensued. Two Brunnich's Murres then flew out to sea. About five minutes later a Razor-billed Auk at close range came by, tagging a flock of Old-squaws, also going out. This bird was near enough to be identified with the naked eye. Another five minutes passed and then a solitary Puffin came right past the light. This bird was also picked up and instantly recognized with the naked eye. It was buzzing by very rapidly, flying with the wind, and was past me by the time I got my glasses on it, so that it was too late to make out the color of the bill-tip. The great depth was plainly seen, and of course all the other characters of this species. Field experience in Labrador, the Newfoundland Banks and Great Britain has made me well acquainted with these birds over many years, and I have seen hundreds and sometimes thousands in a single day. The Puffin is recognizable at the limit of human vision, and the other two species are recognizable as Auks at very great distances and easily separable at moderate distances. I think this account shows that all three species were satisfactorily identified on December 19, though the exact number of individuals is uncertain. It is fortunate that the Puffin, much the rarest of the three, is the most unmistakable. The Puffin has already been mentioned in a 'Bird-Lore' season report, but a sight record of so rare a bird requires a well substantiated account of the observation to be worthy of consideration.—LUDLOW GRISCOM, *American Museum of Natural History, New York.*

Brown Pelican and Summering Bonaparte's Gulls at Newport, R. I.—On the afternoon of June 21, 1927, a Brown Pelican (*Pelecanus oc-*

cidental) was observed resting on the water a mile or two off Narragansett Pier. We sailed quite close to it and the writer made memoranda of its immature plumage. Perhaps two hours later a bird of this species, presumably the same individual, was again observed at a greater distance flying over Newport harbor with a few nondescript young Herring Gulls, in contrast with which its appearance was grotesquely diagnostic. It continued up the bay in a northeasterly direction.

This casual record for the Pelican may have been correlated with an unusual spring abundance of this species in northern Florida (Weston, 1927, Bird-Lore, XXIX, p. 275. Pensacola), with the slow northeastward passage of a storm center which was close to Cape Hatteras the evening of the 19th and some 200 miles east of Cape Cod on the morning of the 21st, causing strong easterly winds and rain in local waters June 19 and 20, (see Forbush, 1925, Birds of Massachusetts, I, p. xix-xxiii), or with both.

On June 29 nine Bonaparte's Gulls (*Larus philadelphia*) were observed at Newport, alighting on and near some stakes in a small landlocked marsh near the Sound shore. A strong southeasterly wind and threatening sky may have accounted for their behavior, but not for their presence, midway between dates which would seem possible for north-bound or south-bound migrants. All were seemingly second year birds, with black tail band, and varying amount of dark on neck and head. There seems to be little or no data of this species summering in southern New England, though it is reported just south of New York City in the summer of 1923 (1923, Bird-Lore, XXV, p. 323; Urner, 1924, Auk, XLI, p. 149).—J. T. NICHOLS, *American Museum of Natural History, New York*.

Madeira Petrel (*Oceanodroma castro*) in Pennsylvania.—While examining recently the natural history collections of Mr. Frank S. Flack, taxidermist of Chambersburg, Franklin County, Pennsylvania, I came upon a Petrel which, according to Mr. Flack, was taken in Pennsylvania. Mr. Flack kindly brought the mounted specimen to me at Harrisburg for critical inspection. Having no comparative material at hand I forwarded it to Mr. W. E. Clyde Todd, of the Carnegie Museum, Pittsburgh, who pronounced it a Madeira Petrel (*Oceanodroma castro*), for which there are, so far as I am aware, but three records for the North American continent—two being for the District of Columbia and one for Indiana.

The specimen was brought to Mr. Flack on April 15, 1912, by Mr. William Lippey, who had found the bird dead along one of the streets of Chambersburg. Mr. Flack does not remember that any considerable storm preceded this date, but according to the records of the Weather Bureau an unusually constant easterly and northeasterly wind had been blowing over Pennsylvania on April 13, 14, and 15 of that year. While this wind was not of high velocity in Franklin County, it may have been sufficiently strong to account for the presence of this maritime bird so far inland. It is possible that the street lights lured the wandering bird

to the environs of the town.—GEORGE MIKSCH SUTTON, *Game Commission, Harrisburg, Pa.*

Canvasback in Pennsylvania in Summer.—On August 9, 1927, when passing a mill pond on Lititz Creek, Lancaster Co., Pa., twenty miles north of the Maryland line, we saw a wild Duck which we could identify only by its distinctive profile. A boy in the neighborhood said "that duck has been here for several days" which would bring its appearance in the locality to the first week in August.

Without question the bird was a Canvasback (*Marila valisineria*) in juvenal plumage which was feeding here with some white farm ducks hundreds of miles from its Canadian summer home. Three days later when we again visited the pond the pale russet color of the bird's crown had spread and perceptibly deepened confirming its profile identification and the statement of A. C. Bent that the color characters of the young Canvasback develop rapidly.—HERBERT H. BECK, and CLIFFORD MARBURGER, *Franklin and Marshall College, Lancaster, Pa.*

Notes on the Migration of Brant.—I have fished for salmon for many years on the Grand Cascapedia River that puts into the Bay of Chaleur from the Gaspé Peninsula, Quebec. A bit to the west of the mouth of the river is a valley of considerable width flanked on either side by rather high mountains. This valley is short and converges to the valley of the Cascapedia. Coming up this valley, I have seen the Brant move to the northward at evening for many years, and now regularly expect them to pass north just after sunset from the 3rd to the 5th of June, but I have not always made a note of this in my records.

I have wondered where they go, and why so much later than the Geese, and how they would have time to go to the extreme north, raise a brood, and return before the freezing up of the water of their breeding ground.

My imperfect notes say that on June 6, 1920, "Brant are moving north after sundown."

In 1921, under date of June 3, "Large flocks of Brant at evening move north."

My next record seems to be 1925. June 5, "Migration of Brant takes place from sunset for an hour. Great flocks pass to the north; one flock must have been nearly 1000 strong."

In 1926 the migration seems to have been much later, for my first notation is June 12. "Saw six or eight big flights of Brant passing north. One flock I estimated over 200 birds." June 14, another large flock passing north this evening. June 15, Brant pass north at 8.30 P. M. June 16, flock of Brant pass north at 9.10 P. M.

1927, June 10, "Brant passing north at 11.00 A. M. June 11, a flock of Brant passed north about 11.00 A. M., and from 8.00 P. M. to 8.30 saw four large flocks of them. June 13, one flock of Brant passed north at 8.35 P. M.

The reason for writing this memorandum at this time is that I have just finished reading "The Voyage of the 'Fox' in the Arctic Seas," being a narrative of the discovery of the fate of Sir John Franklin and his companions, by Captain McClintoch.

Under date of June 8, 1859, Capt. McClintoch records, "The first ducks and brent geese were seen flying northward." At that time Captain McClintoch and his party were at Cape Victoria, the extreme northern point of Boothia Land. He was on his return to the 'Fox' which had wintered in Bellet Strait, and under date of the 26th or 27th of June, 1859, he says, "I saw and shot a brent goose, seated upon an accessible ledge, and made a prize of four eggs; it seems strange that this bird should have selected so unusual a breeding place."

So my Brant of the Grand Cascapedia must arrive at northern Boothia Land in two or three days from the time I see them, but it must be the first week in August before their young will be hatched, and from an Arctic egg to a strong enough pinion to bear them southward Nature has certainly hurried the procedure.—W. B. MERSHON, *Saginaw, Michigan*.

The Bean Goose (*Anser fabalis*) in Canada.—The National Museum of Canada (late Victoria Memorial Museum) has received from Mr. Frank L. Farley, Camrose, Alberta, a specimen of this species taken at Bittern Lake, near that city, October 28, 1926.

Mr. Farley informs us that it was shot in flight while leading a flock of wild Canada Geese. It is in clean and perfect plumage with no recognizable marks of captivity upon it. A number of inquiries have failed to produce any report of captive or escaped Bean Geese in North America and there are no apparent grounds for suspecting this as other than a natural straggler from its normal range. That such a bird should be taken in the mid-continental mass instead of on its coastal edges lends an additional interest to the occurrence.

In plumage the bird agrees perfectly with all descriptions and plates examined, but no authentic specimens have been available for direct comparison. It is a bird of the largest size as shown by the following measurements taken in the flesh by F. L. Farley: extent, 60 in., weight, 10 lbs., wing, 17.4 in., culmen, 3.9, depth of bill at base, 1.85, tarsus, 3.6, middle toe and claw, 3.9.

The bill though dry and faded is still distinctly yellow, with black nail and cloudings of black along culmen and on sides. It differs from any of the illustrations in Alpheraky's, *Geese of Europe and Asia* and the plate in Stejneger's, 'Exploration in Commander Islands and Kamschatka,' by being decidedly larger and deeper, with a highly arched culmen giving a "Roman-nosed" effect that may be somewhat abnormal. There is a narrow plumage line of white bounding the base of the upper mandible. The collector states that the feet and legs were yellow when fresh.

On the whole, this specimen seems to be an extreme or ultra-typical example of the *mentalis* Oates type as described by Alpheraky. Both

Alpheraky and Hartert (Die Vögel der Palaearktischen Fauna) reduce *mentalis* to a synonym of *serrirostris* Swinhœ. I follow the latter author in calling the specimen *Anser fabalis serrirostris* Swinhœ., the east Siberian form. This seems to be a new subspecies for the A. O. U. Check-list and a new species for continental North America.—P. A. TAVERNER, *National Museum of Canada, Ottawa, Canada.*

Cackling Goose (*Branta canadensis minima*) in Southeastern Michigan.—During early July, 1927, at the invitation of Mr. John B. Semple of Sewickley, Pennsylvania, I had the pleasure of studying the summer bird-life of the southern and western shores of Lake Erie. While at the Erie Shooting Club, at Guard Island, Monroe County, Michigan, I examined a specimen of the genus *Branta* which even at considerable distance was obviously not *B. c. canadensis*. The bird was very small in size, in fact noticeably smaller than a Blue Goose with which it was directly compared, and the bill was proportionately short, small and delicate in character. The white cheek patches were widely separated on the throat by a stripe of black, and the under parts were of a slightly mottled dark brownish gray, with no suggestion of a lightening of shade on the lower neck or breast. The lower belly and the under tail coverts were lighter in color. The wing was approximately fourteen inches in length, though I could not make an exact measurement at the time. While it has not been possible to compare this specimen directly with authentic material, I believe that it represents the form *minima*.

The specimen was taken during the winter, over a year ago, either in January, 1926, or during the latter days of 1925. It was mounted by Mr. Charles Belson, who secured it not far from Guard Island.—GEORGE MIKSCHE SUTTON, *Game Commission, Harrisburg, Pa.*

The White-fronted Goose (*Anser albifrons gambeli*) in South Carolina.—On January 10, 1927 Mr. Frederick A. Dallett sent a strange Goose to the bird department of the American Museum of Natural History to be identified. It proved to be an immature male White-fronted Goose, which had been killed on Mr. Dallett's winter home, South Mulberry Plantation, on the Cooper River at Oakley, South Carolina, on January 5, by his friend, Mr. Richard A. Monks. Upon my representations of the rarity of this species in the South Atlantic States, Messrs. Dallett and Monks very kindly presented the specimen to the American Museum. In the correspondence which ensued in connection with this Goose, Mr. Dallett writes me that his records show that he killed another immature White-fronted Goose on December 15, 1920. It was the shooting of a second specimen of the "strange goose" that led him to take steps to have it identified. This species is not given in Wayne's 'Birds of South Carolina,' nor does Bent record it from South Carolina in his 'Life Histories of the Anseres,' Part II, recently published.—LUDLOW GRISCOM, *American Museum of Natural History.*

The White-fronted Goose (*Anser albifrons gambeli*) in New Jersey

—On November 28, 1926, while at Beachhaven Point, a lone Goose was seen flying south. As it came opposite me over the bay, it was obviously Brant size, but uniform gray all over. It attached itself to the rear of a flock of American Scoters, but when these turned to go out to sea through the inlet, it left them, swerved to the right, and went off down the bay. When it had just passed me, I could see the white belly, and a little later, the white upper tail coverts. A moment later a flock of Brant flew up the bay on approximately the same line of flight, and I had been seeing thousands of this species all morning. A cold wave had arrived during the night, the morning was brilliantly clear, with a high northwest wind. I am well acquainted with this Goose in life, and it is, in my opinion, readily identifiable even at great distances. It is worth noting that this same fall the species was shot in Massachusetts, North Carolina and South Carolina.—LUDLOW GRISCOM, *American Museum of Natural History*.

Yellow-crowned Night Heron Nesting in New Jersey.—On June 6, 1927, we visited a Black-crowned Night Heron rookery located on Seven Mile Beach, Cape May Co., N. J., and noticed two pairs of Yellow-crowned Night Herons (*Nyctanassa violacea*) each pair with a nest containing five and eight eggs respectively, one bird was photographed on the latter nest but as a limb obscured the head the photograph is useless as evidence. On June 13, 1926 a single Yellow-crown was observed in this same rookery but no nest discovered (Auk, 1926 p. 538.)—BENJAMIN C. HIATT and CHARLES B. DOAK, *Germantown, Philadelphia, Pa.*

Habits of the Purple Gallinule (*Ionornis martinicus*).—In reading Mr. A. C. Bent's 'Life Histories of North American Marsh Birds,' I was greatly interested in the account of the food and habits of the Purple Gallinule. It is a common species in lower Louisiana, and many opportunities were offered to note it in the field, and to examine specimens in the flesh.

On one occasion I had an experience which throws light on the habits of an individual, if not of the species, when photographing Louisiana Herons on Willow Pond, Avery Island, in June, 1919. The Heron's nest was a low one, a foot or so above the water, and contained four very small babies. The mother bird had not yet returned to the nest, and all about I could hear the characteristic harsh notes of the Purple and Florida Gallinules. They are noisy when undisturbed, and one would occasionally dart across a little mud flat, and into the bordering reeds. Suddenly one came cautiously to the Heron's nest, jumped upon it, and grabbing one of the little Herons by the head, paused for a moment on the edge of the nest with the pot-bellied youngster kicking feebly as it swung back and forth, pendulum-like, and then with a cackling note more like laughter than otherwise, the Gallinule darted from sight. I have never heard of a similar instance.—ALFRED M. BAILEY, *Chicago Academy of Science*.

A Record of the Ruffed Grouse from the Pleistocene of Maryland.¹

—The Cumberland Cave, found several years ago in making a railroad cut through a limestone spur near Corriganville, Maryland, under exploration by Dr. J. W. Gidley, Assistant Curator of Mammalian Fossils in the U. S. National Museum, yielded a considerable collection of vertebrate remains principally of mammals. In recent examination, there has come to light a single bird bone, the only one found in the entire collection. This on critical comparison proves to be the distal half of the left humerus of a Ruffed Grouse, *Bonasa umbellus* (Linnaeus), identical in size and form with the modern phase of this species that ranges in the eastern states.

The site of the find is in Alleghany County, about one-half mile south of the town of Corriganville. The remains occurred in a cave or fissure at a depth of about one hundred feet from the surface, and include several hundred specimens. The species associated, as at present identified, include a crocodilian, and nearly forty forms of mammals among which may be mentioned an extinct eland, three species of giant peccaries, and a number of others not yet described. Of especial interest is the presence of a varying hare, a cony (*Ochotona*), a jumping mouse (*Napaeozapus*), a lemming mouse (*Synaptomys*) and several other forms whose existing representatives are found only at a considerable distance from this locality. It now is supposed that the deposits were accumulated somewhere about the middle of the Pleistocene.

In published records the Ruffed Grouse has been reported from the Pleistocene of Potter Creek Cave in Shasta County, California, by L. H. Miller² while in the eastern states I have identified it from the Pleistocene of the Frankstown Cave in Pennsylvania.³ The present specimen has importance in establishing the species at another eastern locality at a comparatively early date.

The specimen is preserved in the collections of the U. S. National Museum (Catalog number 11,690, Division of Vertebrate Paleontology).—ALEXANDER WETMORE, *U. S. National Museum*.

Renaming of the Venezuelan *Odontophorus guianensis canescens*.—As pointed out by James L. Peters in a recent number of the *Auk* (Vol. XLVIII, p. 542, Oct. 1926), the name *Odontophorus guianensis canescens* Osgood and Conover (Field Mus. Pub., Zool. Ser., vol. XII, p. 27, Aug. 28, 1922) is preoccupied by *Odontophorus parambae canescens* Chapman (Amer. Mus. Novit., No. 18, p. 4, Sept. 22, 1921). Apparently this misfortune was due to the appearance of the latter paper after the manuscript of the former was prepared and submitted for publication. The Venezuelan bird may be called *Odontophorus guianensis polionotus*.—

¹ Published by permission of the Acting Secretary of the Smithsonian Institution.

² Univ. Calif. Publ. Geol., vol. 6, Oct. 28, 1911, pp. 397, 400, and vol. 7, Oct. 12, 1913, pp. 71, 113.

³ See Peterson, O. A., Ann. Carnegie Mus., vol. 16, March 18, 1926, pp. 254-255.

W. H. OSGOOD and H. B. CONOVER, *Field Museum of Natural History, Chicago, Illinois.*

Nesting of the Harpy Eagle (*Thrasaetus harpyia*).—One of the most interesting results of an expedition to northeastern Brazil, taken by the writer in conjunction with Mr. Rodolphe M. de Schauensee during the late winter and spring of 1926, was the discovery of a nest of the Harpy Eagle (*Thrasaetus harpyia*), about three miles from the little settlement of "Patagonia" on the Bragança Railroad, some forty miles east of Para. The nest was found by a native who attached but little importance to his discovery and it was by mere chance that the writer heard of it. By April 22 the Eagle was reported to be sitting, but we were unable to visit the nest until April 27. The birds had selected an enormous mahogany tree, standing in deep virgin forest, not far from the headwaters of the Rio Inhangapy, and the nest was placed on the lowest branch against the trunk of the tree, about a hundred and ten feet above the ground! Climbing the tree was naturally most difficult and dangerous, but after a strenuous effort the nest was reached and the egg it contained secured. On May 9 the nest was again visited and a second egg taken. The writer deserves no credit for the climb which was accomplished by a young half breed, whose daring eventually proved fatal, for a month later while collecting on the Rio Paru, he was drowned when attempting to swim some difficult rapid.

While we were at the nest, one of the Eagles, presumably the female, would occasionally fly leisurely over the nesting tree, but most of the time remained perched high up in a nearby tree, at times looking down at us with crest raised, at times giving vent to a loud, wailing, "Wheeee-o-o-o-o-o." No doubt we could have succeeded in shooting the Eagle, but somehow we did not feel the desire to kill such a splendid bird, so we confined our collecting to lesser prey of which there was an abundance.

The nest itself was large and nearly flat and had evidently been used on previous occasions. It was composed of sticks, some of considerable size, and a great deal of sloth hair served as a lining, presumably the remains of feasts of former Eaglets. Incidentally, Mr. de Schauensee, who secured a living Harpy Eagle at Manaos, tells me that his bird though visibly unperturbed in the presence of a monkey, became almost frantic when confronted with a sloth! No feathers were found in the nest, but a primary feather was picked up at the base of the tree. The first egg was fresh, the second slightly incubated. Both, but particularly the second, are badly nest stained, and though probably unmarked, Mr. Joseph Parker Norris, in whose collection the eggs now are, is of the opinion that they may be spotted. The first egg taken measures 2.80 x 2.35, and the second 3.02 x 2.25. It would seem that the two eggs comprise the set.

Finally, a word as to the nature of the surrounding forest might be of interest. The jungle was much less swampy than about Para or along the rivers Guama and Capim, and a surprising change was noted in both bird and insect life, which made the locality a splendid collecting ground.

Among the most characteristic birds were: *Ibycter americanus*, *Gypso-psitta vulturina*, *Topaza pella*, *Pipra opalizans* (the most common Manikin here), *Pipra stolzmanni*, and *Pitylus erythromelas*. We did not find the Harpy Eagle elsewhere.—JAMES BOND, *Acad. Nat. Sciences, Philadelphia*.

Goshawk Nesting in Clarion County, Pennsylvania.—So far as the writer has been able to determine the Goshawk (*Astur atricapillus*) has been found nesting in but four counties in Pennsylvania, although Warren states that the species has been noted in summer in Cameron, Center, Perry, Elk, Wyoming, Forest and McKean Counties. Actual nesting records thus far known are from Lopez, Sullivan County, Otto and Herman Behr (*Birds of Pennsylvania*, 1890, p. 124; *The Auk*, 1897, p. 317); Slate Run, Lycoming County, Hayes T. Englert; Roulette, Potter County, Harry VanCleve; Conrad (Hull's station), Potter County, George Miksch Sutton (*Wilson Bulletin*, 1925, pp. 193-9); and Warren, Warren County, Ralph B. Simpson and Harry Grantquist (complete records not published). To these records I wish to add one for Clarion County. On July 19, 1927, near Newmansville, Clarion County, State Game Refuge keeper Edward Shaw captured in a steel trap an adult female Goshawk which had obviously been incubating eggs and caring for young. The plumage was considerably worn, and the stomach was empty. Neither nest nor young birds were actually seen, but it is only fair to regard this specimen as representing a nesting record.—GEORGE MIKSCH SUTTON, *Game Commission, Harrisburg, Pa.*

Mortality among Screech Owls of Pennsylvania.—Since November 17, 1924, there have come to the writer's attention one hundred and thirteen requests for permits to retain specimens of the Screech Owl (*Otus asio asio*) which had been found dead or in weakened or wounded condition. These requests came from virtually every County of Pennsylvania, and were made during every month of the year, though chiefly in winter.

Inquiry into the cause of the death of these birds has brought to light some interesting facts. Six individuals (four of which were examined at this office) may have died of starvation or illness, for they were in very poor condition, and the frayed, broken plumage indicated weak constitutionality of long standing, as a result either of insufficient food or disease. These specimens were all found in winter. Two additional living specimens were found which were evidently not in good health, and which had not, to the best of our knowledge, been wounded. Two individuals had killed themselves by flying into window panes, either while trying to enter houses or in attempting to fly toward or enter into combat with the reflected image in the glass. In one case the Owl had evidently been attracted by a caged Canary which was stationed only a short distance from the window. Seven individuals had been caught in steel traps which were set for fur-bearing animals. The presence of bait probably lured the Owls to their destruction. Two of these birds were dead when found, though they had

been caught by the feet only. One individual was accidentally killed by the felling of a tree. Thirteen individuals had been shot, probably by hunters who customarily fire at any bird or animal they see in the woods.

The remaining eighty-two individuals had evidently been killed by flying into automobiles. These birds were found on or near the roads, and broken bones, battered plumage, internal hemorrhage or blood-shot eyes indicated that death had been caused by a terrific blow. While a few of these birds may have been starved or ill when hit, most of them were in excellent condition physically, for they were fat and in good feather, and in many cases their stomachs were full. During the past three years, the writer has personally observed along the roads the remains of sixteen additional Screech Owls thus killed by automobiles, and has once witnessed the death of an individual which flew into the wind-shield. We have knowledge also of at least four Screech Owls which were killed by locomotives.

The fact that these nocturnal birds often hunt their prey along the roads doubtless accounts for much of this destruction. It may be that in many cases the Owls form the habit of eating small mammals, birds or insects which are destroyed along the highways. The glaring lights no doubt often confuse the flying Owls which have not learned to accurately estimate the distance or speed of the approaching cars. Occasionally, perhaps, flying insects upon which the Owls are feeding, may fly toward the lighted highway and actually lure their pursuers to destruction.

It is interesting to note that by far the greater number of the birds thus found dead were in the gray phase of plumage; the sixteen birds killed by automobiles which were examined personally by the writer in the field, were all in the gray phase. This statement is not made with the intention of suggesting that any difference in food-habits or mentality exists between the two color phases of this species, but the fact is interesting nevertheless.—GEORGE MIKSCH SUTTON, *Game Commission, Harrisburg, Pa.*

Snowy Owl Killed by Automobile.—Since the publication of my notes on last winter's invasion of Goshawks and Snowy Owls in Pennsylvania (*Cardinal*, Vol. II, No. 2, July, 1927, 35-41), several additional records have come to hand. One of the most interesting of these concerns a Snowy Owl (*Nyctea nyctea*) which was badly wounded by flying into the windshield of a rapidly moving automobile which was driven by a Mr. Finch of Athens on the night of December 1, 1926, near Athens, Bradford County, Pennsylvania. The injured bird was kept for over a week before it died. I am indebted to Mr. William Wallin, taxidermist of Athens, for this note.—GEORGE MIKSCH SUTTON, *Game Commission, Harrisburg, Pennsylvania.*

Nesting of Costa's Hummingbird in 1927.—The season of 1927 has been marked, locally, by an unusual number of Costa's Hummingbirds, thirteen nests having been found on the writer's property before June

first, about one month from the beginning of the nesting. This is in strong contrast to the very noticeable scarcity in the year 1926, although the last two winters have been approximately equal in amount of rainfall. In the case of the Hummingbirds it is evident that fluctuations of such magnitude must be a matter of distribution, and not the result of varying success in the previous year's nesting, as it might be with species which lay eight or a dozen eggs each season.

A change, or perhaps standardization, in the Hummingbirds' choice of nesting sites has become increasingly apparent. In 1923 two-thirds of the nests, and in 1925 nearly half, were in feijoa bushes; but in 1927 not a single nest could be found in the feijoas, nearly all of them being located near the tips of long branches of spreading avocado trees, at heights of from two to five feet. Had regular cultivation been carried on during the nesting period of 1927, many of these nests would have been destroyed. As it is, all but five of the birds (with two sets of eggs and four half-grown young remaining) have abandoned their nests or met with loss, so that the number of young raised does not promise to be much larger than in former years.—ROBERT S. WOOD, *Azusa, Los Angeles Co., Calif.*

White-throated Swift in Michigan.—There seems to be no authentic record of the occurrence of the White-throated Swift in Michigan so far as the writer can ascertain. One of this species was taken alive in the Biology laboratory of Hillsdale College in August 1926, by Miss Mildred A. Hawkes, assistant in biology. If these birds customarily migrate across Michigan, it seems strange that no other records occur. Otherwise this must have been a lone wanderer, which accidentally found its way into the building.—BERTRAM A. BARBER, *Hillsdale College, Hillsdale, Mich.*

White-throated Swift in Denver, Colo.—A disabled individual of this species was picked up by one of my pupils on May 11, 1927, on the grounds of the Clayton School, Colorado Boulevard, Denver, Colorado. The bird lived two days after being found. Its skin is now in the collection of birds at the Manual Training High School, Denver. This is, so far as I can learn, the first published record of this Swift's occurrence in Denver.—PRUDENCE BOSTWICK, *Denver, Colo.*

The Gray Kingbird (*Tyrannus dominicensis*) again on the Coast of South Carolina.—On May 17, 1927, while in the company of Mr. Alexander Sprunt, Jr., en route to a large breeding colony of American Egrets, I saw a Gray Flycatcher fly by the automobile in which we were riding and alight on a plow handle on this plantation and very near my house. The identification was easy and absolute and confirmed by us. As no doubt existed in my mind that this rare bird was settled for the summer, and about to build a nest near the waters edge, I did not molest it.

When we returned in the afternoon we searched for the bird in a pecan grove that borders a large tidal creek, but we could not find it. The next

day I looked in every suitable locality but was unsuccessful; later on I sent a careful observer to Sullivan's Island, he also was not successful.

This makes the fifth Gray Kingbird I have seen in S. C., since 1885 when I took a nest and one egg and shot one of the birds on Sullivan's Island on May 28, 1885. On May 30, 1893, on Sullivan's Island I took a nest and two eggs and collected both birds which are still in my collection. These birds have longer wings, culmen and middle toe than specimens from the Bahamas, Florida, Greater Antilles and Caribbean Sea showing that the birds that breed on the coast of S. C., have a much longer distance to travel and hence possess longer wings. For an account of the capture of these birds on Sullivan's Island see 'The Auk,' XI, 1894, 178.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Arkansas Kingbirds at Madison, Wisconsin.—While the writers were on a field trip on July 31, 1927, three Arkansas Kingbirds (*Tyrannus verticalis*) were discovered near Nakoma. They were recognized by Mr. Griffiee. The afternoon of August 1, Mr. French found the birds on the south side of the golf links and informed Mr. John Main, who collected two of them. These were immature birds. Early the following morning, Mr. French went to the spot with Mr. A. W. Schorger, who collected the third bird, an adult female which is now No. 211 in his collection. There is little doubt but that the young birds were reared in the vicinity.

There is but one previous record for the state, a female shot at Albion, June 11, 1877. It is singular that all of the records are from Dane County. —G. E. FRENCH and W. E. GRIFFEE, *Forest Products Laboratory, Madison, Wisconsin.*

Feeding Station Habit of Fish Crow.—At Wakulla Beach on the Gulf Coast, 28 miles south of Tallahassee, Florida I saw on May 19, 1926 an interesting example of the habit that the Fish Crow (*Corvus ossifragus*) is said by inhabitants of that region to have; that is of bringing its food to one particular place to be eaten. Wakulla Beach is a collection of 12 or 15 houses and cottages, only three or four being permanently occupied, the others only in summer. These houses are in a pine and oak hammock about a thousand feet back from the shore and separated from it by salt marshes in which numerous Florida Clapper Rails (*Rallus crepitans scotti*) some Willet (*Catoptrophorus s. semipalmatus*) and other birds were nesting. There are no other dwellings for several miles in any direction.

Within fifty yards of one of the permanently occupied dwellings in a small yellow pine tree in the open grove, the Fish Crows came regularly with food and sat and ate it on branches about twenty feet from the ground. There were no Crow's nests in this hammock.

Beneath this feeding station in a space about four by six feet I saw the remains of the following: 79+ Clapper Rail's eggs, one Willet's egg, two Wilson Plover's eggs, seven hen's eggs, several turtle's eggs, 1 fish head, one rock crab. All of the egg shells seemed to have been recently brought.

Mrs. J. L. Hall, an intelligent observer living in the nearest house told me that she had seen the Crows coming to the hammock with the large cultivated mulberry, the nearest source of which was at the next neighbor's to the north, about three miles away.

Many of the egg shells were sufficiently intact to be calipered and I brought samples away and showed to Messrs. Arthur H. Howell and H. L. Stoddard of the U. S. Biological Survey, who happened to be in the vicinity, to whom I am indebted for their opinions as to the identity of the eggs.—WM. G. FARGO, *Jackson, Michigan*.

Brewer's Blackbird (*Euphagus cyanocephalus*) in South Carolina.—In his 'Birds of South Carolina' (1910) Mr. Arthur T. Wayne records the taking of three males and two females of this western species at Chester, S. C., on Dec. 9 and 10, 1886, by Mr. Leverett M. Loomis. These were reported in the Auk, Vol. IV (1887), p. 76. We know of no other records from this state.

On April 17, 1926, Prof. F. Sherman shot a male at Clemson College, S. C. (western part of state), skin now in the collection of Mr. Wayne who confirms the identification.—Another specimen probably a female in company with the male collected, was not secured.

On December 18, 1926 (eight months later, a summer intervening) Mr. G. E. Hudson, a student interested in ornithology, collected a male and a female from a group of about 20 birds, apparently all this species. The identity is confirmed by Mr. Wayne and the skins are now in the collection of Clemson College.

These several records seem to establish this western species as at least an irregular winter resident in western South Carolina.—FRANKLIN SHERMAN and GEORGE E. HUDSON, *Clemson College, S. C.*

Rusty Blackbird again in Colorado.—Dr. Bergtold's note in the 'Auk' of April, 1927 prompts me to report that on February 12 of this year, I identified a male Rusty Blackbird (*Euphagus carolinus*) near the banks of a small creek between Englewood and Littleton, Colo. It was rather early in the day, and the bird seemed somewhat sluggish, as if it had been affected by the cold, so that I was able to approach close enough to note the yellow eye, and the rusty markings on the back, without the aid of my glasses. The alarm note, uttered as the bird took flight, was noticeably sharper than that of Brewer's Blackbird.

This is evidently the eighth record of the Rusty Blackbird in Colorado, and confirms its status as a winter visitor. THOMPSON G. MARSH, *University of Denver, Denver, Colo.*

Lark Sparrow in New Jersey.—On August 21, 1927, at Avalon, Cape May Co., New Jersey in the yard of the hotel where I was stopping I saw and for half an hour studied a Lark Sparrow (*Chondestes grammacus*). I was close to it, not more than fifteen feet, and examined it with field glasses, so that I was able to see every detail of plumage. The striking markings

of the head, the white outer tail feathers and the white tips to all of the others except the middle pair, the black spot in the middle of the breast were all conspicuous. I also noticed a small white spot on either side of the head and a few faint streaks on the sides of the breast something like the collar of a young Canada Warbler, but very indistinct. These characters I did not find mentioned in Chapman's 'Handbook' with which I compared my bird, but Dr. Witmer Stone tells me they are typical of the species. He also tells me that this is the first record of the Lark Sparrow for Cape May County and that there are only a very few others for the State.—C. BROOKE WORTH, *St. David's, Pennsylvania*.

Lark Sparrow at Cape May N. J.—On September 10, 1927, I flushed a Lark Sparrow (*Chondestes grammacus*) from the roadside near the lighthouse at Cape May Point, N. J. It flew onto a telephone wire and then to a low fence post giving me ample time for examining it with binoculars.—WITMER STONE, *Acad. Nat. Sciences, Philadelphia*

Snow Bunting in Georgia—Correction.—In the note on the occurrence of this species in Georgia published in the July 'Auk' an error was made in reading my manuscript. The locality was Grovetown not "Georgetown."—ARTHUR T. WAYNE, *Mt. Pleasant, S. C.*

Nesting of the Acadian Sharp-tailed Sparrow (*Passerherbulut nelsoni subvirgatus*) in Maine.—On June 24, 1926, Captain Herbert L. Spinney and the writer set about the task of finding the nest and eggs of the Acadian Sharp-tailed Sparrow. This bird has for some years been known to breed in the salt marshes at the mouth of the Kennebec River, in the town of Phippsburg, and there we made the search.

Though the nests and eggs of this bird were not expected to differ in any marked degree from those of the common Sharp-tail of the Middle Atlantic States, so far as we are aware they have not been described or reported.

On a previous occasion we have described these marshes as situated between granite ridges with spruce the dominating vegetational feature of the region.¹ The particular marsh where we made this search is a raised marsh, or one having the center somewhat higher than the margin. Through it, a branching creek from the adjacent ocean meanders providing, with a few "salt ponds," suitable conditions for the growth of the "thatch," *Spartina alterniflora*, while the higher parts of the marsh are well covered with *Spartina patens*, and in the more moist sections with "black grass" *Juncus Gerardi*, and *Triglochin maritima*.

The birds of our quest were frequently seen at various points along the edges of the creek, or flying across the dryer parts of the marsh in their passage from one part of the creek to another. Males were frequently seen to perch on stranded stumps, stakes or tall plants, where they remained

¹ 1897, Norton, *Proc. Portland Soc. Nat. Hist.* II: 100, 101.

to sing until disturbed by some jealous Savannah Sparrow or until the singing impulse subsided. These singing posts were usually well bedaubed with the droppings of the birds showing that they were much used. Earlier in the spring, on several occasions, we had seen the males tower suddenly from the salt ponds to a height of about thirty feet and burst into spasms of song as they hovered on quivering wings until the spasm subsided, when they dropped quickly back to the concealment of the "thatch." These habits, which seem to be characteristic of several members of the genus have been described by Dr. Jonathan Dwight in his presentation of this subspecies to science.¹

As we found many of the singing stands in the drier parts of the marsh and the jetsam stranded there by earlier spring tides offered excellent concealment for the nests our search was begun there. With whip-like canes we zig-zagged over the marsh, thrashing at every patch of dry stranded jetsam, and promising tuft of grass, with the result of flushing two Savannah Sparrows from their nests, but no trace of the object of our quest, and no undue anxiety from the males, frequently seen at the singing places rewarded our long beat. Becoming convinced that the dry ground clothed with *Spartina patens* was fruitless, our efforts were directed to the wetter places. On approaching a group of the larger salt ponds joined by treacherous miry connecting links, we cautiously entered one of these hyphen-like mires. Here a patch of young *Spartina alterniflora* with leafy but unflowered culms was growing up through a dead mat of *Spartina patens* which had sprawled out over the mire affording a ground cover half a foot in depth. As we struck this mat quickly with the rod in hand, an Acadian Sharp-tailed Sparrow darted out, and rising but a few inches above the ground flew in the manner characteristic of the species when flushed from a feeding place; she pitched at about 20 yards into the cover at the margin of one of the pools. Soon she rose from the same spot, and hovered at about a foot above the top of the grass, facing the nest and observing our movements, then dropped back to the same spot. Soon she came skulking back toward the nest, crossing open bare spots in full view.

During all of these proceedings she uttered no audible sound. The nest was completely covered by the reclining mat of *Spartina patens* and was entered and left by a narrow passage parallel with the direction of the culms of that grass. It was suspended by the sides from the culms of the "thatch," *Spartina alterniflora*, with its bottom about two centimeters above the wet soggy ground. Its depth outside was 80 mm., its length (parallel with the passage of ingress and egress), was 100 mm., and its width 90 mm. Its depth inside was 60 mm., length 60 m. and width 50 mm. It was built of the blades of *Spartina alterniflora*, and the culms of *Spartina patens*, and lined with the fine, filiform blades of the latter grass. The four eggs were about one third incubated; they were ovate in shape, greenish white in color, with some variation in depth of tint.

¹ 1887, Dwight, Auk, IV; 239.

Three were thickly spotted with mars brown which covered much of the ground color. The fourth was light greenish white, very thickly and finely speckled with mars brown, and with a blackish line partly encircling the larger end. In this specimen the ground color predominated over the pattern. The measurements of the eggs are, 19 x 14.5; 19.5 x 14; 20 x 14; 19 x 14.5. In color, with their red brown and relatively fine markings they resemble more closely eggs of the Song Sparrow than those of the Savannah Sparrow with their russet brown tints and coarse blotches.

The nest and eggs are preserved in the collection of the Portland Society of Natural History, Portland, Maine.—ARTHUR H. NORTON, *Museum of Natural History, Portland, Maine.*

White-crowned Sparrow and Yellow-breasted Chat in South-western Saskatchewan.—Mr. P. A. Taverner, writing on "Some Recent Canadian Records" in the April, 1927, issue of 'The Auk,' mentions the Cypress Hills in southwest Saskatchewan in reference to the White-crowned Sparrow (*Zonotrichia leucophrys*) and the Yellow-breasted Chat (*Icteria virens*). Although I have lived here, at the southeast end of the hills, since 1901, and have since then studied the bird life of the vicinity fairly closely, it was not until 1922 that I first heard and saw the Chat. In 1924 I heard the bird again, likewise in 1925. In 1926 between this ranch and the town of Eastend, a distance of five miles, there were four, representing presumably as many nesting pairs. I have seen female birds occasionally, but never succeeded in finding a nest. This year again I have noted three singing males in the same area. It might interest Mr. Taverner to know that one of these was located within a stone's throw of where he camped during his visit here in 1921.

Mr. Taverner remarks that "the breeding of such a northern species as the White-crowned Sparrow in the same locality, without appreciable separation by altitude, with a southern bird such as the Yellow-breasted Chat, presents a notable confusion of geographic faunas." On my own land I can walk in a few minutes from the willow bush fringing the river, which the Chat frequents, to a wooded ravine where the White-crowned Sparrow nests regularly. The altitude of the river bottom at this point is about 3000 feet; the White-crown breeds invariably in the coulees, and favors the lower levels only during the spring and fall migration seasons.—LAURENCE B. POTTER, *Gower Ranch, Eastend, Sask.*

Philadelphia Vireo and Bay-breasted Warbler in the Adirondacks.—Mr. and Mrs. Philip Livingston and myself, on three visits (June 24, July 3, 16) to the North Fork of the Boquette River, Adirondack Mountains, New York, found the Philadelphia Vireo (*Vireosylva philadelphia*). Our attention was first attracted by a song close to that of a Red-eyed Vireo but in which Mr. Livingston detected differences which we thought worth investigation. The birds—we accounted definitely for three individuals on July 3—were found in a grove composed chiefly

of poplar and some birch. The place had an elevation of 1500 feet, about 100 feet above the river level, and was roughly a fifth of a mile southwest of the Chapel Pond Road. The birds moved about a great deal, mostly in the higher parts of the trees which were very low. One of them sang about half of the time with a ventriloquistic quality that made coördination between ear and eye difficult at first. The song was more leisurely and less varied than that of *V. olivacea* and consisted principally of four phrases not always given in the same order. The first of these, in three notes, dipped down an interval of a major sixth and back. The second phrase was similar but was preceded by two or three indeterminate grace-notes. The third ascended with abrupt emphasis on the final note. The fourth, preceded by grace-notes, descended and was of a lesser interval than the others. Not infrequently one bird would pursue another, the two uttering scarcely audible twitterings. On one occasion a bird directly above me uttered this twittering while alone and perching. We combed the grove and the surrounding territory for the nest but found none then occupied by the Philadelphia Vireo.

Of interest are additional records of the Bay-breasted Warbler (*Dendroica castanea*) three times reported from the Adirondacks in the present volume of 'The Auk' (pp. 111, 113, 255). Three adult males and one female were found in the woods between the Ausable River and the road at St. Huberts on June 26. At this spot (elevation, 1200 feet) a nest with four fledglings was discovered in a hemlock by Mr. Livingston on June 29. Adult males were found, one at Elk Lake (2000 feet), June 27; two on Giant Mountain trail (2000 feet, 2800 feet), July 1; one at Upper Ausable Lake (2000 feet), July 5; one in Wilmington Notch (1700 feet), July 14. Another male and a female, carrying food, were seen near the Upper Ausable Lake, July 4, 5, 6. Still other records, hastily made, are omitted.

Duck Hawks, after an absence of a few years, were again on the cliffs of the Lower Ausable Lake.—EDWARD WEYL, 6506 Lincoln Drive, Philadelphia, Pa.

A New Golden Warbler from the Island of St. Lucia, B. W. I.—While collecting birds on St. Lucia, during March and April of the present year (1927), for the Academy of Natural Sciences of Philadelphia, I was surprised to find a new form of the Golden Warbler (*Dendroica petechia*) occurring commonly, though locally, at different points on the island. How this bird has heretofore been overlooked seems hard to explain, as it is familiar to most of the native hunters.

As my permit allowed me but two of every species on the island, I secured only one male and one female, both taken near Gros Islet. The differences between this and related forms are however sufficiently marked to warrant the description of a new subspecies.

***Dendroica petechia babad* subsp. nov.**

Characters: Similar to *D. p. ruficapilla* (Gmelin) from Guadeloupe and

Dominica, but slightly larger. Crown patch of male more restricted—darker (a rich chestnut rather than orange rufous) and with every feather strongly tipped with yellow or greenish yellow. Female without any trace of rufous on the crown or forehead.

This race is very different from *D. p. petechia* from Barbados, and the form and coloring of the crown patch at once distinguish it from *D. p. alsiosa* from the Grenadines.

Measurements: Male—wing, 59.75; tail 50.25; bill, from base of forehead 14 mm.; tarsus, 19 mm. Female—wing, 58.25; tail, 51.5; bill, from base of forehead, 14.75; tarsus, 19.5 mm.

Range—Island of St. Lucia, British West Indies, occurs abundantly in the arid scrub in the northern part of the island (Gros Islet) and, much less commonly, south along the leeward coast to within a mile of Castries. Common in the mangrove swamps at the extreme southern point of the island (Vieux Fort), north, along the leeward coast, at least as far as Laborie.

A nest was found March 16 near Gros Islet.—JAMES BOND, *Acad. Nat. Sci. Philadelphia, Pa.*

Connecticut Warbler at Daytona Beach, Florida.—On May 18, 1927, an adult female Connecticut Warbler (*Oporornis agilis*) flew through an open window into a classroom of the Seabreeze High School, Daytona Beach. The presence of the bird was reported to me and I succeeded in capturing it. The Warbler was mounted and is now in the local Pier Museum.

In the course of at least ten years of fairly active observation of bird life in Volusia County, this is the first time I have ever seen a Connecticut Warbler. Similarly, in the July number of 'The Auk,' Earle R. Greene records his initial record for the species in the Atlanta region.

W. W. Cooke, in 'Bulletin No. 185,' U. S. Department of Agriculture, deals in some detail with the migration of the Connecticut Warbler. He characterizes its migration as that of the "eccentric type," in that the fall movement is down the Atlantic seaboard and thence through Florida to South America, whereas the spring route is upward through Florida and then northwestward through Georgia and up the Mississippi valley. This well known fact of a different route in spring and fall has led to the general statement in books that the Warbler is rare east of the Alleghanies in spring. But it should be noted that Florida and Georgia are exceptions to this rule, if those States be considered east of the range, as they surely are.

If Cooke's routing of the Connecticut Warbler is correct, it is strange that the bird should be rare in Georgia, but even more strange that it should be equally rare in Florida, for Florida is supposed to be the narrow neck of the funnel through which all individuals of the species pass to South America. The bird should be more common in Florida than in any other State, at the right times of year.

But the Connecticut Warbler, if published records are any indication, is a rarity in Florida. The files of 'The Auk' show but three records for the State—Scott, at Anclote Keys, May 24, 1887, and Wayne, at Old Town, May 10 and 11, 1893. In Washington this summer I called on Mr. Arthur H. Howell, asking him if he knew of other records for Florida. Mr. Howell informed me that for his forthcoming 'Birds of Florida' he had but four additional records of the Connecticut Warbler for the state.

Accordingly, we have eight records now for this species in Florida, the peninsula that is supposed to direct the entire north and south flight to and from South America. Is it not possible that Cooke's routing is in error and that the bird launches out across the Gulf as do so many other migrants? Otherwise it seems difficult to account for the observation of but a dozen individuals of the species in Florida in the course of forty years.

—R. J. LONGSTREET, *Daytona Beach, Florida.*

Some Unusual Records for South Carolina.—The following records made by several bird-lovers of upper South Carolina seem to me enough out-of-the-ordinary to warrant publication:

Cathartes aura. TURKEY VULTURE.—On May 1, 1927, I was at the home of Mr. Elihu Wigington in Anderson County, S. C., and he took me to an old and neglected barn in a wood near his home to see a nest of this bird. I found the eggs, two in number, on the refuse of the stable floor, close up in a corner. About ten feet away a domestic hen was brooding on her nest in a pile of forage, the two being separated, however, by a low partition. The vulture could gain access to its nest through a small window in the stable, or through a door at some greater distance. Mr. Wigington told me that this was the third year this place had been used by the Vulture for a breeding spot. As we approached, the bird flew up and alighted in a nearby tree, and I had a good opportunity to examine it. This indicates a degree of adaptability on the part of this species that I have not previously encountered.

Icterus galbula. BALTIMORE ORIOLE.—Mr. C. A. David of Greenville, S. C., magazine writer and veteran bird-lover, casually mentioned sometime since that Orioles once nested in a tree near his home in Greenville. I made a point to see him personally and ask about the matter. The species was undoubtedly the Baltimore Oriole, judging from the finder's description and from a sketch of one nest which he collected. Mr. David reported that he had not seen one for about ten years. Audubon recorded the bird as nesting in the interior of this state, and it is evidently a former breeder driven from us by deforestation.

Melospiza melodia. SONG SPARROW.—For some time I have had hopes of locating this bird in South Carolina in summer. I found it last year a fraction of a mile from the state boundary in North Carolina. Quite by accident on July 4, with a picnic party, I detected the familiar notes of one or two birds at River Falls on Middle Saluda river. I was able to approach

within about ten feet of one of the birds taking a sun-bath on a wire fence, and could see the little songster so easily that identification was possible, even if I had not been equipped with army binoculars which I used. I still have no record of a nest in this state. The elevation at this point was about 1100 feet, which is about 1800 feet lower than my most southerly record for the nearby North Carolina mountains, and it may be possible the bird was a mere temporary straggler from over the high state boundary ridge.

Pipilo erythrophthalmus alleni. WHITE-EYED TOWHEE.—One of my most faithful correspondents, Mr. Wm. Hahn, Jr., before leaving the state on a collecting tour left with me some interesting data collected around Greenwood, desiring that any material found unusual be published. One of his best records is that of a White-eyed Towhee found nesting in May, 1923. From the nest, which contained the young, he secured one egg that failed to hatch. This is apparently a record for this subspecies both as to altitudinal and northern range. To Mr. Hahn I am also indebted for the next two records.

Protonotaria citrea. PROTHONOTARY WARBLER.—In a letter from Norwood, Ohio, is recorded a find that indicates a hitherto unrecorded adaptability on the part of this attractive Warbler. A bird was found at Indian Lake nesting in a tin can nailed to a tree 15 feet from the ground. No great amount of doubt remains after reading the description in the letter and recalling the nesting habits of all our eastern Warblers, and since this is not on the list of species, recorded by the U.S. Biological Survey as availing themselves of man-made nesting sites, I think it worthy of record.

Troglodytes aëdon aëdon. HOUSE WREN.—As this bird is unusual in upper South Carolina at any season it is worth recording that one nested on the front porch of another upper South Carolina nature-lover, Dr. S. C. Hodges of Greenwood, S. C., in June, 1925.—A. L. PICKENS, 202 Grove St., Greenville, S. C.

Swimming Ability of Fledgling Birds.—On August 6, 1927, a Barn Swallow's nest was discovered under a wharf at Coronado, Calif., by some bathers. The nest was the normal mud cup lined with feathers and it contained well-feathered young. One of these became frightened by the too close approach of the observers and jumped from the nest. As it was unable to fly it fell into the water. It at once started to swim and with apparent ease reached one of the wharf pilings where it clung on a bunch of barnacles. This perch was rather precarious and the baby bird was splashed by every wave. From here it was rescued by two Boy Scouts who, after much effort, succeeded in placing it near the nest on one of the girders.

On July 21, 1924, I saw two fledgling Arizona Hooded Orioles leap from their nest in a eucalyptus tree and fall twenty feet into a pond. They at once swam ashore, paddling with their feet and with their wings spread

out on the water. As the little birds could not fly and rats were numerous about the pond I took them home with me and finished raising them by hand.—FRANK F. GANDER, *P. O. Box 395, East San Diego, Calif.*

Birds Slaughtered by Automobiles.—The observations of Mr. F. B. White in his article "Birds and Motor Cars" (*Auk*, XLIV, 1927, pp. 265) are so very different from my own that I have decided to submit my observations for record. On August 7 I took a twenty mile hike over paved highways adjacent to San Diego and in that short distance saw the crushed or mangled bodies of four birds. The first of these was an immature *Zenaidura macroura marginella* which was freshly killed and with the skin badly torn across the breast; next was the badly flattened-out remains of an *Astragalinus* sp. which had been dead for some time; then a freshly killed male *Carpodacus mexicanus frontalis* in full adult plumage; and last an immature *Lanius ludovicianus gambeli* which was recognizable only by its feathers.

A young friend of mine, Leroy Arnold, has picked up the bodies of an immature *Petrochelidon lunifrons* and an immature *Sturnella neglecta* in the streets during the last thirty days—both apparently killed by cars. On May 18, Mr. L. M. Huey picked up on one of the city boulevards a dead *Toxostoma redivivum* which had just been killed by a car. This was an adult male and I had banded him just 8 days previous to the accident. On July 10 I saw a *Chondestes grammacus strigatus* killed on the highway near Ramona, Calif. I was not prepared to collect it at the time and when I again passed that way, in about half an hour, it was smashed and flattened until scarcely recognizable as a bird.—FRANK F. GANDER, *P. O. Box 395, East San Diego, Calif.*

Robin Killed by Eating Twine.—It is a trite saying that animals know what is good for them, which is anything but the truth, as is substantiated by stock eating loco weed, etc. I recently picked up in the park bordering my home a Robin which had not been long dead. It was an adult bird. Autopsy showed that it had died from obstruction of the bowels caused by a mass of manila twine. The lower end of the intestinal tract was plugged by a lump of twine, the piece being twenty inches long and about a sixteenth of an inch in diameter. It hardly seems probable that the bird mistook this twine for a worm. However if the twine had been smeared with blood or fat, as when used to tie up a package of meat, the taste might have misled the bird. This is not putting too great a stretch on possibilities, as Stefansson lost a valuable dog while on his long ice sojourn, through the dog swallowing a fat soaked rag.—W. H. BERGTOLD, *Denver.*

RECENT LITERATURE

Henderson's 'The Practical Value of Birds.'—There have been many books dealing with economic ornithology but none we think that has more thoroughly covered publications on the subject than Mr. Henderson's volume¹ on the 'Practical Value of Birds.' As the author truly says: "the literature . . . is so scattered as to be practically unavailable to the general student or busy teacher, who desires a good fund of accurate knowledge of the more important facts," and adds that, "this volume is an effort to analyze and digest the North American literature of the subject." The amount of material available is enormous. There have been hundreds of special pamphlets issued by the U. S. Biological Survey and reports of various State agricultural departments and Audubon Societies together with the host of scattered notes in the numerous ornithological and nature study magazines. It is no small matter to compile and digest this material and this Mr. Henderson has done with remarkable thoroughness. As a slight test the reviewer, recalling certain scattered notes that he has published from time to time and that might pertain to such a work, looked them up and found every one referred to by the author. Moreover as in the case of all citations in Mr. Henderson's book, foot note references put one at once in touch with the original sources of the information. Some writers think this a waste of time and space but it has always seemed to us of the utmost importance. Mr. Coward, for example, in his little work on the 'Migration of Birds' refers to an account of the destruction of birds in a conflagration published by the present reviewer (Auk, 1906, p. 249) but fails to give the reference. Mr. Henderson quotes from Coward but, had the reference been given, could have put his readers in touch with the original article.

Mr. W. L. McAtee, the well known authority on economic ornithology, commenting on Mr. Henderson's book writes us "We know only one important work that could have been, but is not included; namely, 'A Biological Survey of the Pribilof Islands' (N. A. Fauna 46, 1923) which contains more information on the food of Pacific waterfowl than is available elsewhere. Checking up with Collinge's 'The Food of Some British Wild Birds,' the other recently published bibliography of economic ornithology, we find that neither is absolutely complete even for the papers of economic ornithologists. For instance the following numbers of papers are cited for various authors (the number in Collinge first, Henderson second); Forbes 10, 4; Forbush 21, 10; Wetmore 2, 10; Judd 10, 9; Fisher 9, 14; Bryant 15, 19; Beal 28, 24; and McAtee 24, 43."

Mr. Henderson divides his work into two parts. I. General Discussion and II. Systematic Discussion. Under the first heading are considered:

¹ *The Practical Value of Birds.* By Junius Henderson, Professor of Natural History and Curator of Museum, University of Colorado. New York, The Macmillan Co., 1927, pp. i-xli + 1-342. \$2.50.

The Ethical and Practical Value of Birds; Crops and Forests Saved by Birds; Sense versus Sentiment; Balance of Nature; Correlation of Structure with Food Habits; The Function of Birds in Nature; Complete Protection not Desirable; Quantity of Food Required by Birds; Methods of Investigation; Birds as Enemies of Injurious Insects, Man and Plants; Birds as Scavengers and as Disease Carriers; Destruction of Birds; Remedies. Under Part II the various families of birds are covered in the order of the A. O. U. 'Check-List' with the principal food of each. For the Passeres alone there are 478 foot note references. A bibliography and good index complete the work. Longfellow's 'Birds of Killingworth, a poem apparently not often read, is quoted to good effect and those who vow vengeance on the Crow may well take notice of the poet's early appreciation of the value of this maligned bird:

"Even the blackest of them all, the Crow,
Renders good service as your man at arms,
Crushing the beetle in his coat of mail
And crying havoc on the slug and snail."

—W. S.

Nicholson's 'How Birds Live.'—The object of this little book¹, the author explains, is to digest all recent theories and to give briefly and simply an outline of the views of bird life reached by modern observation. He moreover makes no attempt to "follow tradition and embellish his text with the strange behaviour of the Hoatzin, Birds of Paradise or the Frigate Bird of Christmas Island" nor does he "propose to invoke ice ages, land bridges or other infernal machinery."

On the contrary he presents a series of interesting sketches on territory, migration, song, etc., bringing in his own criticisms of the theories of others and taking his examples mainly from the common British birds. Our only criticism would be that the book is too English in that no mention is made of the work and theories of American and other writers who have contributed equally to our present knowledge of the subjects under discussion. For example we find no mention of the work of Watson, Cooke and Wetmore on migration, nor of Mousley's article on territory which appeared simultaneously with Howard's. In treating broad phenomena of Nature one cannot be so exclusive.

The chapter headings of the book are Ecology; Struggle for Existence; Territory Theory; Bird Song; Courtship; and Migration, while there are appendices covering General Character of Bird Activity; Number of Eggs Reared; Height at which Birds Fly; Speed; and Bibliography. The last as already indicated consists of English works only.

¹ *How Birds Live. A Brief Account of Bird Life in the Light of Modern Observation.* By E. M. Nicholson. London, Williams and Norgate, Ltd. 14 Henrietta St., Covent Garden, W. C. 2., 1927, pp. i-x + 1-139. Price 3 shillings 6 pence, net.

There is an attractive colored plate of a Jaeger attacking a Roseate Tern, the latter unfortunately with a red bill instead of a black one.

In spite of such omissions as we have indicated Mr. Nicholson's little book will bring many general readers into touch with the present day views on bird life which they would have trouble in finding for themselves and is refreshingly free from much that has become stale and hackneyed in such publications.—W. S.

Seton Gordon's 'Days with the Golden Eagle.'—The author explains that he has lived most of his life in the Eagle Country and has endeavored in the present volume to give information on the Golden Eagle which has not appeared in print before. He has produced a delightful monograph¹ of this splendid bird which still persists in the Scottish Hills as it does in California, although unfortunately the main object of students of the bird in America seems to have been to secure large series of its eggs and no adequate history of the American Golden Eagle has yet appeared.

Mr. Gordon discusses Scottish Eyries; Home Life of a Pair of Eagles; The Country of the Eagle; Eagles, Grouse Raising and Sheep Farming; Highland Stories of the Eagle; Traditions; Status of the Golden and Sea Eagles, Past and Present. There are a number of photographs of the nest from a hillside blind which overlooked it, three colored plates from paintings by J. C. Harrison and a number of beautifully delicate pencil drawings by the same artist, wonderfully reproduced in half-tone as chapter headings. In every way the volume is an attractive piece of book-making.

The observations on the life history of the bird are given in great detail and were obtained by constant watching of the nest from the blind by the author and his wife. They form an interesting comparison with Herrick's life of the Bald Eagle published in 'The Auk.' From the economic side we learn that Golden Eagles rarely take living lambs as so often claimed, that many lambs are born dead and that these and other carrion form the principal food of the bird; but to find the carcass of a lamb in the eyrie is enough for the shepherd and he declares war on the Eagle. Mr. Gordon admits that Golden Eagles do kill some Grouse but he adds "some good sportsmen think a heavy bag is not everything in life and are willing to allow the Eagle to remain as he adds a great charm to the hills," Let us hope that this view may be more widely held by sportsmen in America before all of our splendid birds of prey are exterminated because they claim an inherent right to share the game with the sportsmen.—W. S.

¹ Days with the Golden Eagle. By Seton Gordon, author of "The Immortal Isles" etc. In Collaboration with his Wife. Introduction by His Grace the Duke of Portland, K. G., Photographs by the Author and his Wife. Headpieces and colored plates by J. C. Harrison. London, Williams and Norgate Ltd., 14 Henrietta St., Covent Garden, W. C. 2, 1927, pp. i-xv + 1-176. Price 12 shillings 6 pence.

Jackson's 'Notes on the Game Birds of Kenya and Uganda.'—

The discontinuance of Shelley's 'Birds of Africa' before the game birds had been reached, and the lack of any work in English on the habits of these birds in Central Africa were responsible for the preparation of the present work¹. The author has very wisely taken his nomenclature from Sclater's 'Systema Avium Ethiopicum' and his sequence from Sharpe's 'Hand-List' and compiled his descriptions from the 'Catalogue of Birds in the British Museum,' for as he explains the volume is intended more for those "who are admittedly more interested in birds that afford sport and can go into 'the pot' than those of great beauty or scientific interest."

The plan of the work is to give under the heading, reference to the original place of publication (sometimes omitted if the name is as given in Sharpe), to Sharpe's 'Hand List,' Reichenow's 'Vögel Afrikas' and Sclater's 'Systema'; then the description, distribution, list of recorded localities, and notes, the last including the author's personal experiences or quotations from the works of others.

There are many items of interest regarding the life history of the species as well as hunting experiences. In the account of the Tufted Guinea Fowl we learn that there are large tracts of sunbaked ground which are regularly turned up by these birds as if by a rake, but the work is done with the bill not with the feet as generally supposed. The methods employed by natives in trapping the little Harlequin Quail are described in detail and we are told that in early days when these birds were sold to the Arabs, who had to have them alive in order to kill them in their orthodox manner, the natives broke both wings and legs as soon as they were caught to prevent their escape and brought them thus to market tied in bunches. There is also an interesting account of the destruction of weed seed by the Kenya Dove and other species. Many notes of general interest are scattered through the text which is well worthy of careful perusal, especially since there is no index. Of the species and subspecies considered there are 32 Francolins, 4 Quail, 2 Rock Francolins, 8 Guinea Fowl, 3 Hemipodes, 7 Sand Grouse, 26 Pigeons and Doves, 5 Snipe, 7 Bustards and 19 Ducks and Geese. The work is illustrated by 13 colored plates which have apparently previously appeared in the 'Ibis,' 'Proceedings' of the Zoological Society, etc.

The book is handsomely printed on heavy paper and constitutes a valuable work of reference as well as a readable volume for the sportsman.—W. S.

Sutton on the Invasion of Goshawks and Snowy Owls.—Mr. George M. Sutton of the State Game Commission at Harrisburg, Pa. has

¹ Notes on the Game Birds of Kenya and Uganda (Including the Sand-Grouse, Pigeons, Snipe, Bustards, Geese, and Ducks). By Sir Frederick J. Jackson. K. C. M. G., C. B., M. B. O. U., F. Z. S. Fully Illustrated in Colour. London. Williams & Norgate, Ltd., 18, Henrietta St., Covent Garden, W. C. 2. 1926, pp. i-xv + 1-258. Price 25 shillings.

collected all of the data possible concerning the invasion of Goshawks and Snowy Owls in Pennsylvania during the winter of 1926-7 and has published the results in 'The Cardinal.' The paper¹ shows clearly the difference in the amount of such data that can be procured in a definite area by personal effort as compared with material voluntarily supplied. The sum total of Pennsylvania records for the Snowy Owl received in response to the request published in 'The Auk' was only three while Mr. Sutton records 243 of these birds taken or seen in the State. Maps illustrate the location of the various records of both species and some interesting observations of their food is added.

There were 424 records of the Goshawk and it is interesting to note that in Mr. Sutton's opinion the apparent greater abundance of these birds in certain counties was not due to abundance of small game but to the abundance of gunners.—W. S.

Recent Papers by Kuroda.—Dr. Nagamichi Kuroda has published in English² a list of the birds of Tokyo City. Eighty-eight species are enumerated marked to indicate whether they are breeders, summer visitants, winter visitants or stragglers.

Another paper³ describes a new form of bird from China, *Yungipicus kizuki wilderi* (p. 261) from Eastern Tombs.

A third article⁴ lists a collection of birds from the Riu Kiu Islands.—W. S.

Grote on Bycanistes.—Herr Herman Grote has recently summarized⁵ the relationship of the Black and White African Hornbills of the Genus *Bycanistes*. Of *B. buccinator* he recognizes five forms, and of *B. cylindricus* two, while *B. subcylindricus* and *B. cristatus* have no subspecies. There are maps showing the distribution of the various forms and outline drawings of the heads of the races of *B. buccinator*.—W. S.

Recent Papers from the Tring Museum.—Dr. Ernst Hartert is continuing his task of cataloguing the types in the collection of the Tring Museum, his latest contribution⁶ being the eighth and final installment of the types in the general collection covering the orders from Columbæ to

¹ The Invasion of Goshawks and Snowy Owls During the Winter of 1926-27. The Cardinal vol. II. No. 2. July, 1927.

² A List of the Birds of Tokyo City. By Nagamichi Kuroda. Tori, Vol. V, No. 23, June 10, 1927, pp. 1-14.

³ On an Apparently New Form of *Yungipicus kizuki* from China. By Nagamichi Kuroda. China Journal of Science and Arts. Vol. V. No. 5. November, 1926, p. 261. [In English.]

⁴ On a Small Collection of Birds from the Riu Kiu Islands. By Nagamichi Kuroda. Tori, Vol. V, No. 22, December 18, 1926, pp. 79-95. [In English and Japanese.]

⁵ Die Formenkreise der schwarz-weißen afrikanischen Nashornvögel *Bycanistes*. Von Hermann Grote. Mitteilungen aus dem Zool. Mus. in Berlin. 13 band 1 Heft, June, 1927, pp. 199-205.

⁶ Types of Birds in the Tring Museum. By Ernst Hartert. Novitates Zoologicae, Vol. XXXIV, pp. 1-38. August, 1927.

Struthioness inclusive. Some additions are to follow. We note the following new names proposed in the course of the studies of these groups: *Treron pompadora goodsoni* (p. 2) Tukang Isds. S. E. of Celebes; *Coenocorypha aucklandica meinertzhagenae* (p. 15) Antipodes Islands; *Haematopus ostralegus chathamensis* (p. 17) Chatham Islands; *Gygis alba rothschildi* (p. 18) Laysan Island. There are 207 types listed in the present paper and 1745 in the entire general collection.

Dr. Hartert has also published¹ on some birds from the Muluya Valley, East Morocco. The paper being based on 35 specimens obtained by Admiral Lynes representing 12 species. Mr. Albert Collin and Dr. Hartert have published a list² of 31 bird names which have to be changed for one reason or another and fifteen new names are proposed.

Lord Rothschild contributes a supplement³ to his Avifauna of Yunnan consisting of an annotated list of 73 species prepared by Mr. LaTouche of which 22 were additional to Lord Rothschild's former list (Novitates, XXXIII, pp. 189-343).—W. S.

Philippine Birds for Boys and Girls.—Mr. McGregor and Miss Marshall have published a second edition of their little book⁴ on 'Philippine Birds for Boys and Girls.' The first edition was noticed in 'The Auk' for 1922, p. 438, and the present is essentially similar, illustrated as was the other by colored plates and drawings of the commoner species by Macario Ligaya. It is very encouraging to know that the interest in birds on the islands has been such as to require a second edition of this excellent little book.—W. S.

Simmons' 'Sindbads of Science.'—Under this title Mr. George Finlay Simmons contributes an article⁵ to the July issue of the 'National Geographic Magazine' describing the Cleveland Museum's expedition to the South Atlantic. The narrative is interesting reading, made still more so by the ninety excellent photographs with which it is illustrated, and birds claim quite a share of attention. The expedition touched at the Cape Verde Islands, the coast of Africa, Ascension, St. Helena, Trinidad and other islets of the South Atlantic, as well as Rio Janeiro and Fernando

¹ On Some Birds from the Muluya Valley, East Morocco. By Ernst Hartert. Ibid. pp. 46-49, August, 1927.

² Nomina Mutanda. By Albert Collin and Ernst Hartert. Ibid. pp. 50-52. August, 1927.

³ Supplement to the Avifauna of Yunnan (Novitates, XXXIII, pp. 189-343). Ibid. pp. 39-45, August, 1927.

⁴ Philippine Birds for Boys and Girls. By Richard C. McGregor and Elizabeth J. Marshall. With illustrations by Macario Ligaya. Second Edition. Manila. McCullough Printing Company, 1927, pp. 1-138. Six color plates and many text figures. Price \$1.40.

⁵ Sindbads of Science. Narrative of a Windjammer's Specimen-Collecting Voyage to the Sargasso Sea, to Senegambian Africa and Among Islands of High Adventure in the South Atlantic. By George Finlay Simmons. Leader of the Expedition. Nat. Geogr. Magazine, LII, No. 1, July, 1927, pp. 1-75.

Noronha and was gone for thirty-one months. Reports on the collections obtained will appear later.—W. S.

Delacour and Jabouille on the Ornithology of French Indo-China.—Mm. Jean Delacour and Pierre Jabouille have published an account¹ of their second expedition to French Indo-China consisting of a well annotated list of 443 species and subspecies of birds collected in the provinces of Tranninh in Laos, and Thua-thien and Kontoum in Annam, in 1925 and 1926. Mr. Willoughby P. Lowe coöperated with the authors on behalf of the British Museum and a preliminary report on the expedition appeared in 'The Ibis' for January, 1927. There are eight half-tone plates of scenery and six colored plates of new species and subspecies obtained by the expedition, which have already been described in the 'Bulletin' of the British Ornithologists' Club.

We note that seven males of the rare Edwards' Pheasant were secured. The report is a most valuable contribution to the ornithology of this interesting region of which M. Delacour is making a specialty.—W. S.

McGregor on Philippine Birds.—In a paper² entitled 'New or Noteworthy Philippine Birds, V.' Mr. McGregor describes two new forms *Phodilus riverae* (p. 518) from Samar, and *Prionochilus parsonsi* (p. 520) from Luzon, and also two new subgenera of *Prionochilus*, *Polisornis* (p. 522) with *P. anthonyi* McGregor as type, and *Bournsia* (p. 525) with *P. aeruginosus* Bourns as type.

There are a number of notes on other species, also a colored plate of *Gallicolumba keayi* (Clarke) and photographs of the head of *Pithecophaga jefferyi*.—W. S.

Huey on Birds of Lower California.—Mr. Laurence M. Huey has published an annotated list³ of birds seen or collected at San Felipe in northeastern Lower California during a month's exploration in the spring of 1926, in the interests of the San Diego Society of Natural History. One new form *Dryobates nuttallii longirostra* (p. 27) is described.

There are notes on some ninety forms and several photographs of typical scenery of this excessively arid region.

In another paper⁴ Mr. Huey discusses the zonal status of the Sierra

¹ Recherches Ornithologiques dans les Provinces du Tranninh (Laos) de Thua-thien et de Kontoum (Annam) et quelques autres regions de l'Indochine Francaise. Par Jean Delacour et Pierre Jabouille. Archives d'Histoire Naturelle publ. par la Societe Nationale d'Acclimatation de France. III. Paris, 1927. pp. i-xii 1-216.

² New or Noteworthy Philippine Birds, V. Philippine Journal of Science, Vol. 32, No. 4, April, 1927.

³ Birds Recorded in Spring at San Felipe, northeastern Lower California, Mexico, with the Description of a New Woodpecker from that Locality, Trans. San Diego Soc. Nat. Hist., V, No. 2, pp. 11-40. Pls. 2 and 3. July 14, 1927.

⁴ A Discussion of the Zonal Status of the Sierra San Pedro Martir, Lower California, Mexico. By Laurence M. Huey. Trans. San Diego Soc. of Nat. Hist., V, No. 1, pp. 1-10. pl. 1, February 20, 1927.

San Pedro Martir, citing various unusual conditions of distribution and summarizing his conclusions to the effect that the position of these mountains between two areas of varying desert character and two large bodies of water of different temperature, tends to replace the effects of altitude with the effects of aridity.—W. S.

Wetmore on Fossil Birds from Colorado, and a New Bird from Haiti.—Dr. Wetmore has recently described several new species of fossil birds from the collection of the Colorado Museum of Natural History¹ obtained from the Oligocene of Weld Co., Colo. They are as follows: *Phasmagyps patritus* (p. 3), related to the Black Vulture; *Palaeogyps prodromus* (p. 5), a small Condor but not closely related to the California Condor; *Palaeocrex fax* (p. 9), a large Gallinule with affinities with the Cranes; *Bathornis veredus* (p. 11), a giant Thick-knee apparently the first fossil species of the group that has been described. For it Dr. Wetmore establishes a subfamily *Bathornithinae*.

Recent explorations by Dr. Wetmore in the island of Haiti and San Domingo¹ have yielded among other interesting data a new species of Thrush which he has named *Haplocichla swalesi*.² It was obtained at an altitude of 6000 ft. in the Massif de la Selle. While structurally like *H. aurantia* of Jamaica it is entirely different in color.—W. S.

Riley on East Indian Birds.—In recent papers on East Indian birds Mr. J. H. Riley has described three forms from the Mentawi Islands:³ *Muscadivores aeneus vicinus* (p. 95), *Microtarsus melanoleucos proximus* (p. 96) and *Orthotomus sepium concinnus* (p. 96). Also a new Owl from Engano Island,⁴ *Otus umbra enganensis* (p. 93). All these forms came to light in a restudy of the collection made by C. Boden Kloss and a party from the Raffles Museum, all of which was submitted to the U. S. National Museum for comparison and study.—W. S.

Cormorants Again on Trial.—In his 'Observations on the Double-crested Cormorant (*Phalacrocorax auritus*) on Lake Manitoba,'⁵ J. A. Munro reports on another of the repeated investigations demanded by fishermen of the destructiveness of these birds. In general notes on the district, Mr. Munro lists the common birds and fishes. The study of the Cormorants included general field observations, visits to breeding colonies, and examinations of stomach contents. About a fourth of the food consisted of commercial fishes, but this was offset by consumption of an

¹ Fossil Birds from the Oligocene of Colorado. By Alexander Wetmore. Proc. Colo. Mus. Nat. Hist. VII, No. 2, July 15, 1927, pp. 1-14.

² A Thrush New to Science from Haiti. By Alexander Wetmore. Proc. Biol. Soc. Washington, Vol. 40, pp. 55-56, June 30, 1927.

³ Spolla Mentawiensis—Three New Birds from the Mentawi Islands. By J. H. Riley. Proc. Biol. Soc. Washington, Vol. 40, pp. 95-96, June 30, 1927.

⁴ Description of a New Owl from Engano Island. By J. H. Riley. Ibid. pp. 93-94, June 30, 1927.

⁵ Can. Field-Nat., 41, No. 5, May, 1927, pp. 102-108.

equal proportion of crayfishes besides piscivorous fishes themselves enemies of the commercial species. The author does not believe that destruction of the birds is called for.—W. L. M.

Insect Food of the Black-headed Gull.—Doctor Collinge has recently demonstrated¹ that the Black-headed Gull (*Larus ridibundus*) like our Franklin's Gull is decidedly insectivorous. About a third of the total food is insects and a full fourth is composed of destructive species. The consumption of wireworms and leather-jackets is prodigious and the bird must be regarded as an exceedingly beneficial species. The present seems to be an advance report on analyses of a collection of more than 600 stomach contents, and it is assumed there will be a later and fuller paper covering all elements of the food.—W. L. M.

The Ornithological Journals.

Bird-Lore. XXIX, No. 4. July-August, 1927.

A Pet Kittiwake. By E. R. Warren.—Involving an account of Prof. Hyatt's cruise to the Gulf of St. Lawrence in 1881.

Variation in the Song of the Meadowlark in Edgar Co., Illinois. By John Steidl.—One thousand songs were recorded, ranging in number of notes from one to eight, while of these there were 112 variations.

Nest-Stealing Tactics of the Starling. By G. M. Sutton.—Condemns this "interloper" in favor of our native species which it tends to drive away.

The Mourner of the Slashings. By Clarence M. Beal.—A study of the Mourning Warbler.

The Canyon Towhee. By Angeline M. Keen.

The Migration and Plumage studies of N. A. Birds covers the Red-bellied, Golden-fronted and Gila Woodpeckers.

There are excellent photographs of the Black Skimmer by Henry Carey; Nighthawk by F. M. Weston and Horned Grebe by H. H. Pittman.

Dr. A. A. Allen has a very clever article entitled Jenny Wren's Diary based on his several years' study of the bird. It gives, perhaps, the better idea of the life and troubles of the species than anything previously published.

The Condor. XXIX, No. 4. July-August, 1927.

John Ridgway's Drawings for the Bendire Plates. By Harry Harris.—Personal recollections of Mr. Ridgway communicated to the author.

Cormorants in Relation to Fisheries. By Arthur H. E. Mattingley.—Discusses the problem as it is presented in Australia but the same conditions are present elsewhere. Before the advent of man both fish and Cormorants were more abundant than they are today, but with the

¹ The Ibis, April, 1927, pp. 196-201.

destruction of the birds by man the fish do not increase. The reason is that during the nesting season the Cormorants feed exclusively on crustacea and young turtles, which are the chief destroyers of the eggs and fry of the fish. The author figures that in a year a Cormorant by destroying these enemies saves 300,000 potential fish, while it cannot destroy for food more than 2,190 fish in the same time, a balance of 297,810 in its favor.

Notes on the Breeding Coastal and Insular Birds of Central Lower California. By Griffing Bancroft.

Notes on Birds Collected in the Virgin River Valley of Utah. By Vasco M. Tanner.

In 'Field and Study Notes,' is a record by H. S. Swarth of a specimen of Rufous-necked Sandpiper (*Pisobia ruficollis*) collected by G. Dallas Hanna on St. Paul Island, Alaska. Mr. Swarth also states that the specimen of *Lanius mollis* recorded by Mailliard and Hanna from Alaska is really a young example of *L. borealis*.

The Oölogist. XLIV, No. 6. June, 1927.

Summer Residents of the Higher Southern Piedmont. By A. L. Pickens.—Dealing with South Carolina.

Sage Thrush in Louisiana. By E. S. Hopkins.—An interesting record if the identification is correct.

Bulletin of the Northeastern Bird-Banding Association. III, No. 3. July, 1927.

The Age of Banded Birds. By J. T. Nichols.—From records of captured and recaptured birds a minimum age for a number of individuals is secured. A Crow is listed at least eight years of age, and a Chimney Swift of the same age, while an Egret and Chickadee had reached at least seven years.

Returns of a Crested Flycatcher. By Mabel Gillespie.—Five years' records.

Plumage Variations and Plumage Changes among Eastern Purple Finches. By C. L. Whittle.

The Cardinal. II, No. 2. July, 1927.

Amphibians and Reptiles in Relation to Birds. By M. G. Netting.

The Earliest List of Pennsylvania Birds. By Bayard H. Christy.—In Gabriel Thomas' account of the province, 1698.

The Invasion of Goshawks and Snowy Owls During the Winter of 1926-1927. By G. M. Sutton (see antea p. 579).

The Ibis. (12th series) III, No. 3. July, 1927.

Systematic Results of Birds collected at high altitudes in Ladak and Sikkim. By R. Meinertzhagen.

On the Breeding of the Blue-winged Goose of Abyssinia. By F. E. Blaauw.

On the Breeding of the Bare-eyed Cockatoo of Australia. By F. E. Blaauw.

The Geographic Origin of the Birds of South America. By H. von Ihering.

Migration as seen in Egypt. By R. E. Moreau.—A most interesting paper, presenting a wealth of data and discrediting the oft republished map "after Palmen" showing two routes across the Mediterranean.

A Review of the Family Cursoriidae. By Annie C. Meinertzhagen.

Critical Remarks on some Cameroon Birds. By Oscar Neumann.

On the Cranial and other Skeletal Characters of *Grandala coelicolor*, and its systematic position. By W. P. Pycraft.—The author decides that there is no question but that this interesting bird is a Thrush, "one of the lower, less specialized members of the group in which *Merula* and *Turdus* seem to hold the highest place." His investigations moreover seem to indicate that the structure of the tympanic cavity will be an important taxonomic character in this group.

On the Affinities of *Lalocitta*. By Peter P. Sushkin.—Considers it close to an ancient group standing near the ancestors of the American Blue Jays and not very remote from *Perisoreus*, and with no connection in its ancestry with the Palaearctic Jays.

Remarks on the generic names *Colymbus* and *Podiceps*. By Einar Lönnberg.—Dr. Lönnberg refers to the present reviewer's query on this matter but had he consulted my paper a little more carefully he would have seen that I did not agree with my countrymen in applying *Colymbus* to the Grebes, but considered it applicable to the Loons as he himself does. However, after considering the evidence brought forward by Dr. Stejneger as to the varying nature of "*Colymbus arcticus*" in the several editions of Linnaeus, I am willing to admit that Gray's designation of this species as type cannot be accepted and therefore am once again in accord with "my countrymen." Since Dr. Lönnberg does not believe in applying the principle of subsequent designation where it upsets a name long in use, it is hardly necessary to discuss his arguments which are the same as have been many times advanced prior to the general adoption of the International Code.

A Note on *Gorsachius melanolophus*. By C. Boden Kloss.—Fails to separate Hachisuka's new races (*Ibis*, 1926, pp. 585-592).

British Birds. XXI, No. 1. June, 1927.

Notes on the Breeding of the Jack Snipe. By Ralph Chislett.—With excellent photographic illustrations.

A Note on Song and Display of Kingfishers. By W. M. Marsden.

Manx Ornithological Notes, 1925 and 1926. By P. G. Ralfe.

The Stimulus to Migration. By A. L. T.—A notice and criticism of Mr. Rowan's article on "On Photoperiodism, Reproductive Periodicity, and Annual Migration" (see *Auk*, 1927, p. 275).

British Birds. XXI, No. 2. July, 1927.

Notes on the Nesting Habits of the Peregrine Falcon. By H. A. Gilbert.—With an admirable photograph of bird and nest.

Local Migration in Autumn in Southwest Forfarshire. By Henry Boase.

The supposed Nesting of the Velvet Scoter, Long-tailed Duck and Scaup in Scotland. By Rev. F. C. R. Jourdain.—Records unsatisfactory.

Tawny Owls and Batrachian Food. By E. St. George Betts.—Evidence of considerable toad or frog food.

British Birds. XXI, No. 3. August, 1927.

The Nestings of Some Further Rare British Birds. By H. F. Witherby.
Recovery of Marked Birds.—A large number arranged systematically.

Avicultural Magazine. V, No. 6. June, 1927.

Barnardius commelinae Mathews, with a colored plate.

A Tame Honey-Guide. By Sydney Porter.

The Birds of Prey. By G. H. Gurney.—In captivity (continued in July).

Avicultural Magazine. V, No. 7. July, 1927.

Palaeornis calthropae with a colored plate.

The Tragopan's Display. By D. Seth-Smith.

The Oölogists' Record. VII, No. 2. June, 1927.

Nesting of the Harpy Eagle. By J. P. Norris, Jr.

Some Notes on the Breeding and Other Habits of the Black-headed Heron (*Ardea melanocephala*). By C. F. Pitman.

Nesting of the Golden Eagle, Duck Hawk and Prairie Falcon with photographs. By Wright M. Pierce.

The Emu. XXVII, Part 1. July, 1927.

Two *Neophema* Parrots. By E. Ashby.—With a colored plate of *N. chrysostoma* and *N. chrysogaster* and a key to all the species of the genus.

Field Notes on the Blue-winged Parrot (*N. chrysostoma*). By W. W. Giblin.

Further Notes on Rare Parrots. By Florence M. Irby.

Southern Outposts. By Clive Lord.—Little known rocks and islets off the southern coast of Tasmania.

Birds of Sandy Cape, Tasmania. By R. W. Legge.

The Genus *Amytornis*: A Review. By A. G. Campbell.

Effects of Droughts on Bird-Life in Central Queensland. By H. G. Barnard.

The Curious Frogmouth. By Florence M. Irby.—With an excellent photograph of a brooding bird.

The Button-grass Parrot. By Clive Lord.—*Pezoporus wallicus*.

The South Australian Ornithologist. IX, part 3. July, 1927.

Birds Seen between Oodnadatta and Alice Springs. By J. B. Cleland.

Albatrosses and Other Birds seen between Melbourne and the Bluff and Dunedin, N. J. By A. M. Morgan and J. B. Cleland.

Petrels off the North Cape, New Zealand. By J. B. Cleland.

Revue Francaise d'Ornithologie. No. 217. May, 1927. [In French.]

Catalogue of the Birds of the Department of Charente-Inferieure. By Cte. C. de Bonnet de Paillerets.—Arranged alphabetically by the French names.

On the Food Habits of the Cuckoo. By E. Plocq.

A Defence of Oölogists. By J. de Chavigny.

Revue Francaise d'Ornithologie. No. 218-219. June-July, 1927. [In French.]

A Study of the Unique French Capture of the Blue Tit (*Parus cyanus cyanus*). By M. Legendre.

The Breeding of *Anas strepera* in the Camargue. By T. deVries.

Geographic Distribution of the Serin (*Serinus canarius serinus*) in France. By Cte. C. de Bonnet de Paillerets.

Experiments on the Factors of Orientation in Birds.—With Carrier Pigeons.

L'Oiseau. VIII, No. 4. April, 1927. [In French.]

Colored plate of the blue variety of the Alexandrine Parrakeet.

The Birds of Prey. By G. H. Gurney.

The Ant-thrushes. By J. Berlioz.

L'Oiseau. VIII, No. 5. May, 1927. [In French.]

Plate of the Trumpeter Swans in the N. Y. Zoo, from a photograph.

The Steganopodes. By J. Delacour.

The Swans. By Marquis of Tavistock.

Le Gerfaut. 17, Fasc. 1. 1927. [In French.]

The Eyrie of the Sparrow Hawk. By L. Coopman.

A Glance at the Work of E. Mayr on the Spread of the Serin Finch. By C. Dupond.

Journal für Ornithologie. LXXV, Heft 2. April, 1927. [In German.]

Ninth and Tenth Reports on Bird Study at the Heligoland Biological Station. By Rudolf Drost.—With many records of banded birds.

On the Life History of *Acrocephalus schoenobaenus*. By Gottfried Schierman.

Biological Anatomy of the Flight Methods in Birds and their Phylogeny. By Hans Boher.—Relative length of the upper arm, forearm, hand, primaries, secondaries etc. An ingenious series of diagrams illustrate the differences graphically in 112 species. The author begins flight with the fluttering jump, then the fluttering flight, the regular pulsating flight

and, as the highest development, the soaring flight and the whistling or buzzing flight.

Remarks on Some Little Known Formicariidae from South and Middle Brazil. By E. Snethlage.

What is *Otocoris berlepschi*? By O. Neumann.—Probably a specimen of *O. rubea*, the locality "Caffraria" being doubtless a mistranscription of California.

Investigations on the Weights and Measurements of Birds' Eggs, By F. Groebels and F. Mobert.

Journal für Ornithologie. LXXV, Heft 3. July, 1927. [In German.]

Remarks on the Life History of *Mergus*. By E. Christoleit.

Further Contributions to Our Knowledge of the *Thesaurus Picturatum* of Marcus zum Lamm. By O. Schnurre.

Adolf Gueinzius as an Ornithologist. By Hugo Hildebrandt.

The Breaking Down of Our Conception of a Species I. Inconsistency. By E. Hartert. II. Ecology and Species Making. By E. Stressemann and III. Reply to Stressemann's Rejoinder. By E. Hartert.—An interesting contribution to the never ending discussion as to the nature of a species.

My Expedition through Northeastern Brazil. By H. Snethlage.

New Forms of Palaearctic Birds. By A. V. Fediuschin.—Two races of *Parus atricapillus*, one of *Lanius minor* and one of *Corvus cornix* all from eastern Russia and Siberia.

Ornithologische Monatsberichte. 35, No. 4. July-August 1927. [In German.]

The Murre Colonies of Nova Zembla. By G. P. Gorbunow.

On Some Forms of *Erythropgia*. By H. Grote.—*E. ruficauda iubilaea* (p. 103), Mikindani, German East Africa, and *E. r. iodomera* (p. 104) Usegua.

In 'Short Notes,' Stressemann describes *Centropus phasianus theisfelderi* (p. 111) from Dutch New Guinea and H. Grote, *Sylvietta micrura adelphæ* (p. 118) Baraka, Tanganyika.

Ornithologische Beobachter. XXIV, Fasc. 9. June, 1927. [In German.]

Eyrie of the Brown Kite. By P. Schnoof.

Ornithologische Beobachter. XXIV, Fasc. 10. July, 1927. [In German.]

Obituary of Johann Büttikofer.

Both issues contain many local items and reports on bird protection and banding.

Contributions to the Breeding Habits of Birds. III, No. 4. July, 1927. [In German.]

The Life History of Pyrrhonorax pyrrhonorax. By Ernst Zollikofer.
Breeding of Bradenburg Willow Tits. By G. Stein.
On the Osprey. By F. Pens.—With a discussion of its calls.
Observations on the Egg-Laying of the Cuckoo. By R. Stimming.

Yearbook of the Netherlands Ornithological Club. 17, Aff. 1.
July, 1927. [In Dutch.]

The Birds of Java. By Snouckaert von Schauberg.
Dichromatism in Microtarsus. By F. C. Van Heurn.

Tori. V, No. 23. June, 1927. [In Japanese.]

On a Collection of Birds from the Island of Basilan, Philippines. By
N. Kuroda.

On the Breeding of the Wild Mallard in Hondo, Japan. By T. Ishizawa.

On the Breeding of the Japanese Sand Martin at Sakhalin. By G.
Nakamura.

Lobipes lobatus Obtained at Saitama, Hondo. By T. Momiyama.

*On the Origin of Names of Japanese Ptarmigan and the Superstition on
them.* By K. Okada.

A List of the Birds of Tokyo City. By N. Kuroda. [In English.]

Ornithological Articles in Other Journals.

Canadian Records of Bird Banding Returns. (*Canadian Field
Naturalist*, May, 1927.)

Rowan, William. Details of the Release of the Hungarian Partridge
(*Perdix perdix*) in Central Alberta. (*Canadian Field Naturalist*, May,
1927.)

Munro, J. A. Observations on the Double-crested Cormorant on
Lake Manitoba. (*Canadian Field Naturalist*, May, 1927.)

Munro, J. A. Concerning August Bird-Life in the Okanagan Valley,
B. C., 1926. (*Canadian Field Naturalist*, May, 1927.)

Our Arctic Bird Visitors. (*Bull. Bucks Co., (Pa.) Fish Game and
Forestry Assn.*, January 27, 1927.)—Records of Snowy Owls, Goshawks,
etc.

Phillips, John C. Investigating the Ruffed Grouse. (*The Sports-
man*, June, 1927.)

Lewis, Harrison F. The Philosophy of Wild Life Conservation.
(*Rod and Gun and Canadian Silver Fox News*, August, 1927.)

Birula, A. On the Bird Life of the Arctic Coast of Siberia. (*Or-
nithologische Monatsschrift*, January, 1927.)—An important daily record
of the birds seen on the Russian Polar Expedition of 1900-1903. Un-
fortunately the records are not arranged systematically. [In German.]

CORRESPONDENCE.

Destruction of Eagles in Alaska.

Editor of 'The Auk,'

At least twice in 'The Auk' and often in other journals of a more popular tone, have appeared articles commenting adversely on the bounty paid by the Territory of Alaska on the Bald Eagle. Some writers have implied that the residents of Alaska have such a high regard for dollars that their finer feelings, among them regard for feathered creatures, are dulled beyond hope. The impression has been wide-spread in some quarters that Alaskans are chiefly ignorant Indians and renegade whites and that all our territorial affairs must be regulated for us by intelligent people of more cultured localities.

Now, as a resident of Alaska for many years and a life-long student of birds, I wish to take exception to these implications. I find the average citizens of Alaska to compare very favorably with those of other parts of the United States as regards intelligence, patriotism and love for the beauties of nature; in fact, many of us went to Alaska in search of such beauties. Moreover, we are on the ground and are well aware of our needs, as most outsiders are not. We have suffered long from the vagaries of theorists who have made a tourist trip to Alaska and acquired most of their information of the country from the deck of a boat. Our fish have been depleted because outsiders have been able to control the legislation necessary to their protection. Now others are attempting, on sentimental grounds, to dictate to us in regard to legislation we consider vital for protection of our game. And game to the average Alaskan is not a Sunday sport; to a very large degree it is his sustenance and is valued by him accordingly.

At the request of Dr. T. Gilbert Pearson, I have recently forwarded to him a letter giving detailed information on destruction of Alaskan game by the Eagle. This letter also shows their astonishing abundance in Alaska as compared with any other part of the United States and the impossibility of their extinction. Therefore, I shall not attempt to burden your columns with details.

I submit that not one of the many objectors to the Alaskan Eagle bounty has shown himself to have any real knowledge of the facts in the case. Their wish is father to their thought. They hope that the Eagles do not destroy game, consequently they know that they do not. The great damage to deer is done by the Eagles when the fawns are *small*. One writer makes a trip in May, before the fawns are born, and states he sees no sign of damage. Another investigates in the fall, after the fawns are able to take care of themselves, and the young Eagles are out of the nests, and arrives at the same conclusion.

If anyone desires real knowledge of the facts, let him go into the deer

country in July, when the fawns are small and helpless and the Eaglets are large and hungry, and climb to a few dozen Eagles' nests, and he will receive enlightenment. The writer has done this and knows whereof he writes.

The writer has a great deal of personal sentiment for the Eagle. He considers it a grand bird and would be among the first to protest if there were any danger of its extermination, but anyone conversant with the facts knows there is no such danger in Alaska.

This is still a frontier country and man, in killing the game necessary to his subsistence, has upset the balance of nature. To save the game, this must in some way be restored. This we hope to accomplish by keeping the numbers of predatory animals and birds within proper bounds, and we believe that we, who are on the ground and conversant with conditions, are the proper ones to define these bounds.

G. WILLETT.

Los Angeles, Calif., August 1, 1927.

Generic Name of the Emu.

The Editor of 'The Auk,'

Your brief note on the correct scientific name of the Emu (Auk, XLIV, p. 466) treats the question whether *Dromiceius* or *Dromaius* should be used as if it were solely a question of priority. As the Emu is such a well-known bird and is mentioned in all general works on ornithology, its correct scientific name is obviously a matter of interest to all ornithologists, not merely to those of Australia. Perhaps therefore you will allow me to state very briefly the reasons which led the Check-List Committee of the R. A. O. U. to retain the name *Dromaius*, instead of the prior *Dromiceius* used by Mathews and advocated by you.

Dromiceius appears on page 54 of Vieillot's "Analyse" as the scientific name for the "Emou." On page 70 of the same work appears a list of "New names, derived from Greek, which are employed in this Ornithology." *Dromiceius* is not included in this list but instead appears *Dromaius* with its Greek derivation "dromaios" (spelt in Greek letters) and its Latin equivalent "velox" (swift). *Dromaius* had not been used earlier in the book so it seems certain that the word *Dromiceius* is really a misprint for *Dromaius*. These words look decidedly different in print but in writing they are not at all dissimilar and it is easy to see how such a mistake could be made by a printer setting up type from a manuscript.

Agassiz in 1842 gave *Dromiceius* in his "Nomenclator" as a typographical error for *Dromaius*, and Newton in his "Dictionary of Birds" speaks of *Dromiceius* as "an obvious misprint corrected a few pages further on to *Dromaius*." Article 19 of the International Code reads:—"The original orthography of a name is to be preserved unless an error of transcription, a lapsus calami, or a typographical error is evident." The majority of the Australian Committee, in agreement with the authorities quoted, con-

sidered that *Dromiceius* was an evident error for *Dromaius*, and therefore spell the name as it seems certain that Vieillot intended to spell it. No question of priority arises if this view is taken.

Yours, etc.

15 Edridge Road,
Croydon, England.
July 28, 1927.

W. B. ALEXANDER.

[The editor was merely showing what is necessary if we follow exactly the rules of the International Code. The minute we begin to depart from the rules and assume what an author intended to do we open the door to all sorts of dissension. There is, however, a procedure open to all, namely to submit such cases to the International Commission for a ruling. Personally I should like to see *Dromiceius* for the Emu and "*Rubicola*" for the American Woodcock, a probable misprint for *Rusticola*, ruled out.—W. S.]

NOTES AND NEWS.

In the ordinary routine of life tragedy seems far removed and when it does come into our experience it is overwhelming. So the instant death of LOUIS AGASSIZ FUERTES in an automobile grade crossing accident, on August 22, 1927, leaves us stunned with the suddenness and the enormity of our loss. To be thus cut off at the very peak of his notable career is an irreparable calamity to the fields of both science and art.

From the day when the late Dr. Elliott Coues introduced him at a meeting of the American Ornithologists' Union and exhibited some of his earliest bird paintings, we have seen Fuertes steadily advance in this line of effort until he had become one of the most notable bird artists that the world has known, with probably no superiors and but one or two who could be counted his peers. At the same time he acquired a knowledge of bird life that placed him in the front rank of ornithologists entirely independent of his remarkable ability as an artist.

Hundreds of thousands of bird lovers and lovers of art who have known and benefitted by the work of Fuertes the artist, will mourn his loss, but it is upon the far smaller number who were privileged to know Fuertes the man, that the blow of his death will fall most heavily. Kind and generous; cheerful and unassuming; with an enthusiasm that was contagious; a personality that brightened every assemblage of which he was a part, and remarkably free from the eccentricities which so often accompany genius; we cannot think of his life as passed; we cannot picture an A. O. U. meeting without his genial presence; we cannot realize that the hand that wrought such masterpieces of bird portraiture is forever stilled.

Dr. Frank M. Chapman has been requested by the President of the Union to prepare a memorial which will be presented at the stated meeting in November, and later published in 'The Auk.'—W. S.

THE New England Ruffed Grouse Investigation has continued and a circular letter to the contributors to the fund, issued September 1, 1927, gives a summary of the work that has been carried on. Dr. E. E. Tyzzer of the Harvard Medical school, has investigated the specimens sent in with regard to disease. He has found no one disease or parasite which is responsible for the periodic fluctuations in the number of birds, although many different Grouse diseases and parasites have been found, any of which may become a serious menace if the normal vitality of the birds is lessened by unfavorable conditions. Specimens sent in have been utilized in every way possible and valuable data has been secured on molt, weight, measurements, food, etc.

While no general appeal is made this fall for specimens, any sick, injured,

or dead birds that are picked up should be sent to Dr. A. O. Gross, Bowdoin College, Brunswick, Me., as it is from such specimens that much important information may be secured.

HON. GEORGE SHIRAS, Esq. has issued a little pamphlet on the 'History of the First Migratory Bird Bill and its subsequent Enactment' which will be of great interest to those interested in game protective legislation and in the passage of this most important piece of legislation.

THE Illinois Audubon Society has published another of its attractive bulletins for spring and summer, 1927. This is the most pretentious publication put out by any of the Audubon Societies and contains much of importance and interest to those outside the ranks of the society. Among other articles may be mentioned an account of a visit to Bird Haven, an account of the Robert Ridgway Wild Life Sanctuary, and a paper by Mr. Ridgway himself, on the relation of birds to the farmer and fruit grower. There are many records of importance which must be quoted in future works on the birds of the State, and many beautiful half-tone illustrations. The Society deserves great credit for maintaining this excellent publication.

MR. FRANCIS A. FOSTER, County Commissioner of Marthas Vineyard, has given to the Federation of Bird Clubs of New England, a tract of 600 acres of forested land on the island to be maintained as a bird reservation and will provide an endowment for its maintenance.

DR. THEODORE SHERMAN PALMER, Secretary of the American Ornithologists' Union, gave an address before the Northern Division of the Cooper Ornithological Club, at the University of California, on July 28, 1927. His subject was "Early Western Ornithologists." His scholarly and informative paper was listened to attentively by a large audience.

PRESIDENT WETMORE has appointed the following committee to consider the matter of the award of the Brewster Memorial Medal which will be awarded this year: James H. Fleming, chairman, Charles W. Richmond and Outram Bangs.

ARRANGEMENTS for the annual meeting of the American Ornithologists' Union to be held in Washington are well in hand and the usual announcement regarding hotel headquarters and the conduct of meetings will be mailed to all members. The meeting of the Fellows and the annual business meeting for Fellows and Members will be held on Monday, November 14.

Public meetings for the presentation of papers will open Tuesday morning, November 15, in the Natural History Building of the U. S. National Museum, and will continue until the afternoon of November 17. There will be an excursion on November 18 in which all may participate.

Papers now scheduled for the program will be of general interest and a large attendance is anticipated. Titles of all papers must be in the hands of the Secretary by November 5, or it will be impossible to place them on the program.

'THE AUK' is once more indebted to Mr. H. Prentiss Baldwin, who has contributed the entire cost of publishing the papers on Ptilosis and the Nesting Behaviour of the House Wren, while Mr. A. W. Schorger has kindly contributed Plate XIV. It is through the generosity of such members that the journal is maintained at its present size and quality.

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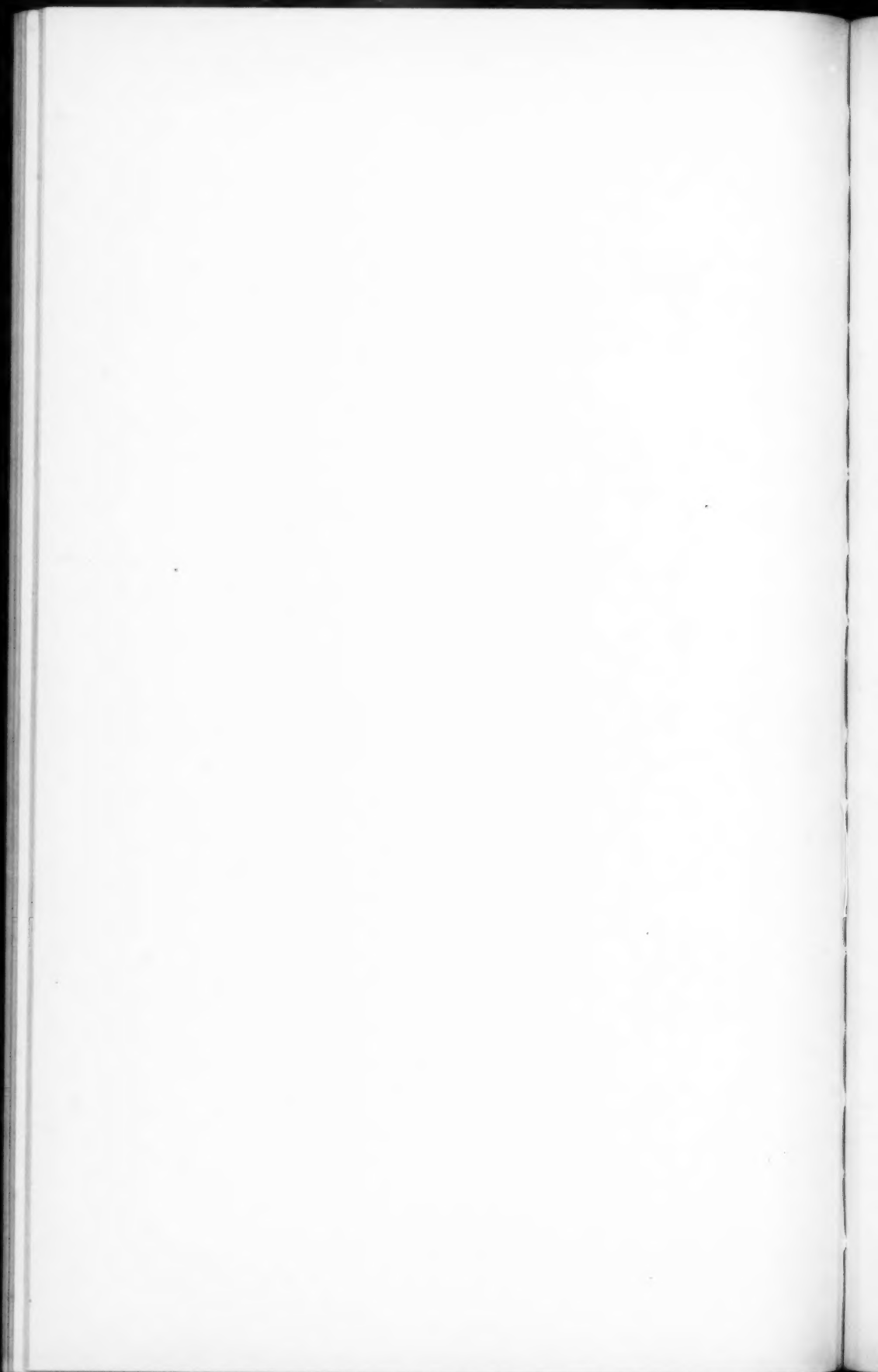
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ERRATA.

- Page 39, line 22, for "Tofino" read Toffin's.
Page 71, line 20, for "Triunfo" read Triumfo.
Page 88, line 37, for "Merriman" read Merriam.
Page 102, line 12, for "Showy" read Snowy.
Page 117, line 6, for "Protonatrea citra" read Protonotaria citrea.
Page 124, line 32, for "J" read A.
Page 126, line 14, for "Hennesy" read Hennessey.
Page 144, line 5, for 000 read 34.
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Kennedy, Co. Wicklow, Ireland. 1921
- LAUBMANN, DR. ALFRED, Zool. Staatssammlung, Neuhauser-strasse
51, Munich, Germany. 1923
- LAVAUDEN, LOUIS, Villa Jouvence, 12 Rue de Cronstadt, Tunis,
Tunisia. 1923
- LEACH, DR. JOHN ALBERT, c/o Education Dept., Melbourne, Australia. 1919
- LODGE, GEORGE EDWARD, Hawkhouse, Park Road, Camberley, Surrey,
England. 1921
- LUCANUS, FRIEDRICH C. H. VON, Invalidenstrasse 43, Berlin N. 4,
Germany. 1923
- MACGILLIVRAY, DR. WILLIAM D., Broken Hill, New South Wales,
Australia. 1922
- MADARSÁZ, DR. JULIUS VON, Matyas-ter 14, Budapest, Hungary. . . . 1884
- MARIA, HERMANO, APOLINAR, Instituto de la Salle, Bogota, Colombia. 1921
- MATHEWS, GREGORY M., Foulis Court, Fair Oak, Hants, England. . . 1911
- MATTINGLEY, ARTHUR HERBERT E., 42 Canterbury Road, Camber-
well, Melbourne, Australia. 1921
- MEINERTZHAGEN, MRS. ANNIE C., 17 Kensington Park Gardens,
London, W. 11, England. 1919
- MEINERTZHAGEN, COL. RICHARD, 17 Kensington Park Gardens, Lon-
don, W. 11, England. 1921
- MENZBIER, PROF. DR. MICHAEL, Soc. Naturalists Moscow, 1st Univ-
ersity, Mokhovaia Str. 3, Apt. 9, Moscow, U.S.S.R. 1884
- MILLAIS, JOHN GUILLE, Compton's Brow, Horsham, Sussex, England. 1911
- MITCHELL, DR. P. CHALMERS, Zoological Society, Regent's Park,
London, N. W. 8, England. 1919
- MOFFETT, LACY I., 5 Quinsan Gardens, Shanghai, China. 1919
- MOMIYAMA, TOKUTARO, 1146 Sasazka, Yoyohata-mati, Tokyo, Japan. 1925
- OLIVER, W. R. B., Dominion Museum, Wellington, N. Z. 1923
- PHILLIPS, MONTAGU AUSTIN, 57 St. George's Sq., London, S. W. 1,
England. 1919
- RAMSDEN, DR. CHARLES T., Box 146, Guantanamo, Cuba. . . (1912) 1918
- RIBEIRO, DR. ALIPIO DE MIRANDA, Theresopolis, Estado de Rio
Janeiro, Brazil. 1921
- RINTOUL, MISS LEONORA JEFFREY, Lahill, Largo, Fifeshire, Scotland. 1919

ROBERTS, AUSTEN, Pretoria, Transvaal, South Africa.....	1920
ROBINSON, HERBERT C., c/o Lloyds Bank (Cox & King's Section), 6 Pall Mall, London S. W. 1, Eng.....	1918
SCHAANNING, H. T. L., Stavanger Museum, Stavanger, Norway....	1923
SCHENK, JAKOB, Secy. Roy. Hungarian Inst. Ornith., Debroi-Ut 15, Budapest II, Hungary.....	1926
SCHIÖLER, DR. E. LEHN, Uraniavej 14-16, Copenhagen, Denmark..	1920
SETH-SMITH, DAVID, Zoological Gardens, London, N. W. 8, England..	1920
SKOVGAARD, PETER, Skovbo, pres Viborg, Denmark.....	1926
SNETHLAGE, DR. EMILIA, Mus. Nacional, Rio Janeiro, Brazil.....	1915
SNOUKAERT VON SCHAUBURG, BARON RENE C. E. G. J. VAN, Hotel les Terrasses, Territet, Switzerland.....	1920
STRESEMAN, DR. ERWIN, Zool. Museum Universität, Invalidenstrasse 43, Berlin, N. 4 Germany.....	1922
SWYNNERTON, C. F. M., Poste Restante, Dar-es-Salaam, Tanganyika Ter., East Africa.....	1918
TAKA-TSUKASA, PRINCE NOBUSUKA, 106 Hommuracho, Azabu, Tokyo, Japan.....	1924
THEEL, DR. JOHAN HJALMAR, University of Upsala, Upsala, Sweden.	1884
THIENEMANN, DR. JOHANNES, Rossitten, Kurische Nehrung, Germany.....	1926
THOMSON, DR. A. LANDBOROUGH, 9 Addison Gardens, Kensington, London, W. 14, England.....	1922
TICEHURST, DR. CLAUD B., 121 London Road North, Lowestoft, Eng- land.....	1922
TICEHURST, N. F., 24 Pevensey Road, St. Leonards-on-Sea, England..	1918
TURNER, MISS EMMA L., 13 Storey's Way, Cambridge, England....	1920
UCHIDA, SEINOSUKE, No. 1, 7-chome, Aoyama, Kitamachi, Tokyo, Japan.....	1919
VAN SOMEREN, DR. VICTOR G. L., Box 140, Nairobi, Kenya Colony, East Africa.....	1921
WAIT, W. E., Marshfield, Maitland Crescent, Colombo, Ceylon....	1925
WHISTLER, HUGH, Calbee House, Battle, Sussex, England.....	1921
WHITE, HENRY LUKE, Belltrees, Scone, New South Wales.....	1920
WHITE, CAPT. SAMUEL ALBERT, Wetunga, Fulham, South Australia..	1919
WITHERBY, HARRY FORBES, 12 Chesterford Gardens, Hampstead, London, N. W. 3, England.....	1916
ZEDLITZ, COUNT OTTO VON, Tofhult bei Kalfsjöholm, Västergötland, Sweden.....	1923

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ANDERSON, DR. R. M., Nat. Mus., Ottawa, Ont. Can.....	(1907)1914

- ATTWATER, H. P., 2120 Genesee St., Houston, Texas. (1891)1901
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 *BALDWIN, S. PRENTISS, 11025 East Boulevard, Cleveland, Ohio (1917)1921
 BARBOUR, DR. THOMAS, Mus. Comp. Zoology, Cambridge,
 Mass. (1903)1914
 BARTSCH, DR. PAUL, U. S. Nat. Museum, Washington, D. C. . . (1896)1902
 BECK, ROLLO HOWARD, c/o Amer. Consul, Suva, Fiji Isds. . . . (1894)1917
 BOND, FRANK, 3127 Newark St., N. W., Washington, D. C. . . (1887)1901
 BOWLES, JOHN HOOPER, Berg Apts., Tacoma, Wash. (1891)1910
 BRAISLIN, DR. WILLIAM C., 425 Clinton Ave., Brooklyn, N. Y. . . (1894)1902
 BROOKS, WM. SPRAGUE, 234 Berkeley St., Boston, Mass. (1907)1917
 BRYAN, WM. ALANSON, Museum, Exposition Park, Los Angeles,
 Calif. (1898)1901
 BRYANT, DR. HAROLD CHILD, Mus. Vert. Zool., Berkeley, Calif. (1913)1918
 BUNKER, CHARLES D., Kansas Univ. Mus., Lawrence, Kans. . . (1916)1923
 BURNS, FRANK L., Berwyn, Pa. (1891)1901
 BUTLER, AMOS W., 52 Downey Ave., Irvington, Indianapolis,
 Ind. (1885)1901
 *CHAMBERS, W. LEE, Box 4, Eagle Rock, Calif. (1907)1913
 CHERRIE, GEORGE K., Newfane, Vt. (1891-1912) (1917)1918
 CLARK, DR. HUBERT L., Mus. Comp. Zool., Cambridge, Mass. . (1886)1902
 *COOKE, MISS MAY THACHER, 2572 University Place, Washington,
 D. C. (1915)1926
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 DAWSON, WM. L., 1133 Huntington Bank Bldg., Columbus, O. (1895)1905
 DEANE, WALTER, 29 Brewster St., Cambridge, Mass. (1897)1901
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 DIXON, JOSEPH S., Mus. Vert. Zool., Univ. Calif., Berkeley, Calif.
 (1917)1923
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 FINLEY, WILLIAM L., Jennings Lodge, Clackamas Co., Ore. . . . (1904)1907
 FORDYCE, GEO. L., 40 Lincoln Ave., Youngstown, Ohio. (1901)1921
 GABRIELSON, IRA N., 515 P. O. Bldg., Portland, Ore. (1912)1920
 GAULT, BENJAMIN TRUE, 424 S Main St., Glen Ellyn, Ill. (1885)1903
 GOLDMAN, EDWARD A., Biological Survey, Washington, D. C. . (1897)1902
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 HARPER, FRANCIS, 234 Berkeley St., Boston Mass. (1907)1917
 *HARRIS, HARRY, 5234 Hermosa Ave., Eagle Rock, Calif. (1911)1919
 HERRICK, PROF. F. H., Western Reserve Univ., Cleveland, O. (1913)1919
 HERSEY, F. SEYMOUR, Easton, Mass. (1911)1916
 HOFFMANN, RALPH, Santa Barbara School, Carpenteria, Calif. (1893)1901

- HOLT, ERNEST G., Bell Bldg., Montgomery, Ala. (1911)1925
- *HOWELL, A. B., U. S. Nat. Museum, Washington, D. C. (1909)1916
- HOWELL, ARTHUR H., 2919 S. Dakota Ave., Washington, D. C. . (1889)1902
- HUBER, WHARTON, 225 St. Marks Sq., Philadelphia, Pa. . . . (1915)1922
- JACOBS, J. WARREN, 404 S. Washington St., Waynesburg, Pa. . (1889)1904
- JEFFRIES, WILLIAM A., 11 Pemberton Square, Boston, Mass. . (1883)1901
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- JOB, HERBERT K., Dept. Education, Columbia, S. C. (1896)1901
- KALMBACH, EDWIN R., Biological Survey, Washington, D. C. . (1910)1915
- *KENNARD, F. H., Dudley Road, Newton Centre, Mass. (1892)1912
- *LAW, J. EUGENE, Gen. Delivery, Altadena, Calif. (1907)1916
- *LINCOLN, F. C., Biological Survey, Washington, D. C. (1910)1921
- LLOYD, HOYES, 406 Queen St., Ottawa, Ont., Can. (1916)1925
- *LYON, W. I., 124 Washington St., Waukegan, Ill. (1921)1925
- MACKAY, GEORGE H., 110 State St., Room 208, Boston, Mass. . (1890)1901
- MAILLIARD, JOHN W., 230 California St., San Francisco, Calif. (1895)1901
- MILLER, DR. LOYE HOLMES, Southern Branch Univ. Calif., Los Angeles, Calif. (1918)1920
- MOORE, ROBERT THOMAS, 505 Slavin Bldg., Pasadena, Calif. . (1898)1914
- MOUSLEY, WM. HENRY, 469 Harvard Ave., Montreal, Que., Can. (1915)1926
- MUNRO, JAMES A., Okangan Landing, B. C., Can. (1913)1926
- *NAUMBURG, MRS. W. W., 121 E. 64th St., New York, N. Y. . (1916)1924
- NICHOLS, JOHN T., Am. Mus. Nat. Hist., New York, N. Y. . . (1901)1910
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- PENNOCK, CHAS. J., Kennett Square, Pa. (1888)1901
- PETERS, JAMES LEE, Harvard, Mass. (1904)1918
- PREBLE, EDWARD A., Biological Survey, Washington, D. C. . . (1892)1901
- RATHBUN, SAMUEL F., 306 Roy vue Apts., 615 Bellevue Ave. N., Seattle, Wash. (1893)1902
- RHOADS, SAMUEL N., 81 Haddon Ave., Haddonfield, N. J. . . . (1885)1901
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- ROBINSON, COL. WIRT, U. S. A., West Point, N. Y. (1897)1901
- *ROGERS, CHARLES H., East Guyot Hall, Princeton, N. J. . . . (1904)1921
- SAUNDERS, ARETAS A., 48 Longview Ave., Fairfield, Conn. . . (1907)1920
- SETON, ERNEST THOMPSON, Greenwich, Conn. (1883)1901
- *SHERMAN, MISS ALTHEA R., Route 2, McGregor, Iowa. . . . (1907)1912
- *SHIRAS, HON. GEORGE, 3d, 4530 Klingle St., Wesley Heights, Washington, D. C. (1907)1915
- SIMMONS, GEO. FINLAY, Cleveland Mus., 2717 Euclid Ave., Cleveland, O. (1910)1923
- STEPHENS, FRANK, Nat. Hist. Museum, San Diego, Calif. . . . (1883)1901
- STEPHENS, PROF. T. C., Morningside College, Sioux City, Iowa. (1909)1920
- STODDARD, HERBERT L., Beachton, Grady Co., Ga. (1912)1924
- STORER, PROF. TRACY IRWIN, Univ. Farm, Davis, Calif. (1916)1922

- STRONG, DR. REUBEN M., 706 S. Lincoln St., Chicago, Ill. (1889)1903
 SUTTON, GEO. M., State Game Comm., Harrisburg, Pa. (1919)1925
 *SWALES, B. H., U. S. Nat. Mus., Washington, D. C. (1902)1909
 SWENK, MYRON H., 1410 N. 37th St., Lincoln, Nebr. (1904)1920
 THAYER, JOHN ELIOT, Lancaster, Mass. (1898)1905
 TOWNSEND, DR. CHARLES H., Aquarium, Battery Park, New York,
 N. Y. (1883)1901
 TROTTER, DR. SPENCER, Darlington & Miner Sts., West Chester, Pa.
 (1888)1901
 *TYLER, DR. WINSOR M., 522 Mass. Ave., Lexington, Mass. (1912)1917
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 WAYNE, ARTHUR T., Mt. Pleasant, S. C. (1905)1906
 WHITE, FRANCIS BEACH, St. Paul's School, Concord, N. H. (1891)1925
 WILLETT, GEORGE, Ketchikan, Alaska. (1912)1913
 *WILLIAMS, ROBERT WHITE, Dept. Agric., Washington, D. C. (1900)1918
 WOLCOTT, DR. ROBERT H., State University, Lincoln, Nebr. (1901)1903
 *WOOD, DR. CASEY A., 7 W. Madison St., Chicago, Ill. (1917)1921
 WOOD, NORMAN A., Museum Univ. of Mich., Ann Arbor, Mich. (1904)1912
 WRIGHT, DR. ALBERT H., Upland Road, Ithaca, N. Y. (1906)1919
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 ZIMMER, JOHN T., Field Mus. Nat. Hist., Chicago, Ill. (1908)1922

ASSOCIATES.

*Life Associates.

**Honorary Life Associates.

- ABBEY, G. F., Cottonwood, Minn. 1924
 ABBOTT, CLINTON GILBERT, Nat. Hist. Mus., Balboa Park, San
 Diego, Calif. 1898
 ABBOTT, CYRIL EDWARD, Zool. Dep't., Johns Hopkins University,
 Baltimore, Md. 1923
 ABBOTT, MISS HARRIET, P. O. Box 125, Fryeburg, Maine. 1918
 *ACHILLES, MRS. GERTRUDE S., Morgan Hill, Calif. 1925
 ADAMS, BENJAMIN, Wethersfield, Conn. 1911
 ADAMS, DR. CHARLES E., 29 W. Broadway, Bangor, Maine. 1922
 ADAMS, REV. CHARLES L., New Canaan, Conn. 1920
 ADAMS, IVERS S., 98 Washington St., Dorchester, Mass. 1923
 ADAMS, WILLIAM C., 282 Newbury St., Boston, Mass. 1920
 ADAMS, DR. Z. B., 43 Cottage Farm Road, Brookline, Mass. 1908
 AGASSIZ, R. L., 12 Ashburton Pl., Boston, Mass. 1922
 AGERSBORG, DR. H. P. K., 1428 West Riverview Ave., Decatur, Ill. . . . 1925
 AHRENS, DR. T. G., Xantener Strasse 21, Berlin W. 15, Germany. . . . 1920
 **AIKEN, CHARLES E. H., 1523 N. Tejon St., Colorado Springs, Colo. . . 1926
 AIMAR, DR. CHARLES PONS, 4 Vanderhorst St., Charleston, S. C. . . . 1916
 *ALEXANDER, MISS ANNIE M., Box 248, Suisun City, Calif. 1911

ALLEN, MRS. AMELIA SANBORN, 37 Mosswood Road, Berkeley, Calif.	1919
ALLEN, ARTHUR F., 714 34th St., Sioux City, Iowa	1919
ALLEN, DEVERE, Wilton, Conn.	1925
ALLEN, LAWRENCE E., Albion, Iowa	1923
ALLEN, MISS MARY W., 289 Walpole St., Norwood, Mass.	1924
ALLEN, ROBERT PORTER, 936 W. 4th St., Williamsport, Pa.	1922
ALLEN, WALTER F., 168 Delavan Ave., Newark, N. J.	1925
ALLERT, OSCAR P., R. D. 2, McGregor, Iowa	1923
ALSOP, MISS ELIZABETH B., 229 Euclid Ave., Ridgway, Pa.	1926
ANDERSON, CHAS. J., 24 Eddywood Ave., Springfield, Mass.	1922
ANDERSON, EDWIN C., Dell Rapids, S. D.	1919
ANDERSON, WM., South Park, Merriam, Kans.	1925
ANDREWS, ARTHUR ALLEN, 28 Dungan St., Canandaigua, N. Y.	1924
ANDREWS, CLEMENT W., The John Crerar Library, Chicago, Ill.	1924
ANDREWS, ETHAN ALLEN, Johns Hopkins Univ., Baltimore, Md.	1924
ANGELL, WALTER A., 33 Westminster St., Providence, R. I.	1901
ANGWIN, J. G., 146 Green Ridge St., Dunmore, Pa.	1926
ANKENEY, MISS HELEN, Rt. 10, Xenia, Ohio	1920
ANTHONY, H. E., Am. Mus. Nat. Hist., New York, N. Y.	1911
ARMSTRONG, EDWARD E., 2249 Calumet Ave., Chicago, Ill.	1904
ARNOLD, BENJAMIN W., 465 State St., Albany, N. Y.	1924
ARNOLD, EDWARD, Canadian Nat'l R'Ys., Montreal, Que., Can.	1894
ARNOLD, DR. H. D., 520 Commonwealth Ave., Boston, Mass.	1923
ARTHUR, E. W., 7438 Perrysville Ave., Ben Avon, Pittsburgh, Pa.	1919
ARTHUR, STANLEY CLISBY, 6043 Perrier St., New Orleans, La.	1916
ASPINWALL, MRS. C. A., 1839 Wyoming Ave., Washington, D. C.	1916
ATHERTON, EDWARD H., 22 Aldworth St., Jamaica Plain, 30, Mass.	1917
ATKINSON, DR. D. A., 132 Oakwood Ave., West View, Pittsburgh, Pa.	1924
ATKINSON, HENRY S., 5 N. Edwards Hall, Princeton, N. J.	1926
ATWELL, GEORGE C., Strafford, N. H.	1920
AUSTIN, OLIVER L., JR., Hill Rest, Tuckahoe, N. Y.	1925
AVERBACH, BERTRAM F., 2173 Cummington Rd., Cleveland, Ohio	1924
AVERILL, CHARLES KETCHUM, 1075 Iranistan Ave., Bridgeport, Conn.	1919
AVERY, CARLOS, 2273 Woolworth Bldg., 233 Broadway, New York, N. Y.	1925
AYRES, DOUGLAS, JR., Fort Plain, N. Y.	1922
BACHMAN, DR. HAROLD A., 442 Melrose St., Chicago, Ill.	1924
BACON, BRASHER C., Madisonville, Ky.	1922
BACON, FRANCIS L., 236 Winona Ave., Germantown, Pa.	1917
BADÉ, DR. WM. FREDERIC, 2616 College Ave., Berkeley, Calif.	1916
BAERG, PROF. W. J., Agr. Exp. Sta., Univ. of Ark., Fayetteville, Ark.	1924
*BAGG, AARON C., 70 Fairfield Ave., Holyoke, Mass.	1916
BAILEY, ALFRED M., Field Museum, Chicago, Ill.	1918
BAILEY, PROF. GUY A., Geneseo, N. Y.	1910
BAILEY, MRS. H. M., 2109 Nebraska St., Sioux City, Iowa	1922
BAILEY, J. W., Mississippi College, Clinton, Miss.	1925

BAILEY, SAMUEL WALDO, 62 Holmes Road, Pittsfield, Mass.....	1909
BAILLIE, JAMES L., Royal Ont. Mus., Toronto, Ont., Can.....	1923
BAIRD, DAVID G., 228 South Third St., Philadelphia, Pa.....	1924
BAIRD, MISS KATHARINE B., 815 Webster St., Washington, D. C.....	1918
BAIRD, ROBERT LOGAN, 279 Oak St., Oberlin, Ohio.....	1921
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BALES, DR. BLENN R., 149 W. Main St., Circleville, Ohio.....	1907
BALL, MRS. BENNETT F., Oakville, Conn.....	1905
BALL, EDWARD M., Box 144 East Falls Church, Va.....	1918
BALL, HOWARD, 1233 Irving St., N. W., Washington, D. C.....	1923
BALL, DR. JOS. P., 5001 Frankford Ave., Philadelphia, Pa.....	1911
BARBER, PROF. BERTRAM A., 350 West St., North, Hillsdale, Mich.....	1920
BARCLAY, WILLIAM, 110 Nelson St., Barre, Vt.....	1921
BARKER, MISS HELEN, 421 East Adams St., Sandusky, Ohio.....	1918
BARLOW, H. H., c/o H. H. Dennis, Ill. Athletic Club, Chicago, Ill.....	1921
BARNARD, T. W., 46 Norfolk Road, Arlington, Mass.....	1921
BARNES, CHARLES SYDNEY, 894 Boulevard, Bayonne, N. J.....	1920
BARNES, CLAUDE T., 359 Tenth Ave., Salt Lake City, Utah.....	1908
BARNES, R. MAGOON, Lacon, Ill.....	1889
BARRETT, CHAS. H. M., 1339 Valley Place S. E., Washington, D. C.....	1912
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BARROW, MISS ELVA E., N. C. College for Women, Greensboro, N. C.....	1924
BARRY, MISS ANNA K., 5 Bowdoin Ave., Dorchester, 21, Mass.....	1907
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BARTRAM, EDWIN B., Bushkill, Pike Co., Pa.....	1913
BARTRAM, JOHN, Rt. 2, West Chester, Pa.....	1924
BASCOM, H. P., Stockton, St. Michael, Barbados, B. W. I.....	1922
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BATES, REV. J. M., Red Cloud, Nebr.....	1918
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BAXTER, PHILIP N., 205 E. Magnolia St., Stockton, Calif.....	1924
BAYNARD, OSCAR E., P. O. Box 104, Plant City, Fla.....	1924
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BEADEL, HENRY L., Route A, Tallahassee, Fla.....	1926
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BENSON, FRANK W., 14 Chestnut St., Salem, Mass.....	1920
BENSON, MRS. G. F., Owen, Wis.....	1926
BERGSTROM, C. ALBERT, Conneaut Lake, Pa.....	1925
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BIGELOW, DR. LYMAN F., 80 Winter St., Norwood, Mass.....	1914
BISHOP, SHERMAN C., N. Y. State Museum, Albany, N. Y.....	1919
BLACK, JOHN D., Winslow, Ark.....	1926
BLACKWELDER, ELIOT, Stanford University, Calif.....	1895
BLAIR, MISS HELEN M., 254 Melwood St., Oakland, Pittsburgh, Pa.....	1924
BLAKE, MRS. GEO. F., 12 Mass. Ave., Worcester, Mass.....	1924
BLAKE, S. F., Bureau Plant Industry, Dept. Agr., Washington, D. C.....	1923
BLANCHARD, FRANK N., Dept. Zool. Univ. Mich., Ann Arbor, Mich.....	1924
BLINCOE, BENEDICT J., Rt. 13, Dayton, Ohio.....	1921
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BOGARDUS, MISS CHARLOTTE, Elm St., Coxsackie, N. Y.....	1909
BOGGS, MISS MARION A., Rt. 3, Waynesville, N. C.....	1924
BOLEN, HOMER R., State Teachers College, Cape Girardeau, Mo.....	1926
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BOND, HARRY L., Lakefield, Minn.....	1908
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BONFILS, FREDERICK G., 1500 East 10th Ave., Denver, Colo.....	1918
BOSSLER, JOHN, Hamburg, Pa.....	1926
BOSSON, CAMPBELL, 19 Brewster St., Cambridge, Mass.....	1906
BOSTWICK, MISS PRUE, 1045 Gaylord St., Denver, Colo.....	1923
BOULTON, W. RUDYERD, JR., Am. Mus. Nat. Hist., New York, N. Y.....	1915
BOURNE, THOMAS L., 262 Long Ave., Hamburg, N. Y.....	1914
BOWDISH, B. S., Demarest, N. J.....	1891
BOWDISH, MRS. B. S., Demarest, N. J.....	1902
BOWDITCH, DR. HAROLD, 44 Harvard Ave., Brookline, Mass.....	1900
BOWEN, HARVEY, Hog Island, Broadwater, Northampton Co., Va.....	1925
BOWEN, W. W., 340 Lexington Ave., New York, N. Y.....	1926
BOWLES, MRS. HENRY L., Worthy Hotel, Springfield, Mass.....	1924
BOWMAN, DR. JOHN G., 155 North Dithridge St., Pittsburgh, Pa.....	1925
BOYCE, J. G., Box 772, Texarkana, Texas.....	1923
BOYD, MRS. HARRIET T., 17 Marsh St., Dedham, Mass.....	1917
BOYD, HENRY R., 133 Shephard Ave., Newark, N. J.....	1925

BOYLE, ASHBY D., 380 E St., Salt Lake City, Utah.....	1921
BRACKEN, MRS. HENRY M., Claremont Inn, Claremont, Calif.....	1897
BRADSHAW, FRED, Dept. Agriculture, Regina, Sask., Can.....	1921
BRADY, MAURICE K., 3220 17th St., Washington, D. C.....	1923
BRAINERD, DR. JOHN BLISS, 39 Seminary St., Middlebury, Vt.....	1921
BRALY, J. C., 501 Burnside St., Portland, Oregon.....	1926
*BRANDRETH, COURTENAY, Ossining, N. Y.....	1905
*BRANDRETH, FRANKLIN, Ossining, N. Y.....	1886
BRANDT, H. W., 14507 Shaker Blvd., Shaker Heights, Cleveland, Ohio.....	1915
BRANNON, PETER A., Box 358, Montgomery, Ala.....	1919
BRECKENRIDGE, W. J., Zool. Museum, Univ. Minn., Minneapolis, Minn.....	1926
BREDER, CHAS. M., JR., Aquarium, Battery Park, New York N. Y.....	1919
BRETSCH, CLARENCE, 690 Broadway, Gary, Ind.....	1924
BRICKENSTEIN, MISS MARY R., 1603 19th St., Washington, D. C.....	1920
BRIDGE, EDMUND, 52 Wyman St., West Medford, Mass.....	1910
*BRIDGE, MRS. EDMUND, 52 Wyman St., West Medford, Mass.....	1902
BRIGHT, STANLEY, R. F. D. 2, Reading, Pa.....	1921
BRIMLEY, H. H., State Museum, Raleigh, N. C.....	1904
BRISTOL, MISS F. L., 169 Columbia Heights, Brooklyn, N. Y.....	1921
BROCK, DR. HENRY H., 687 Congress St., Portland, Maine.....	1923
BROCKELMAN, JULIUS S., 309 S. Salceda St., New Orleans, La.....	1925
BROCKWAY, ARTHUR W., Hadlyme, Conn.....	1912
BRODE, DR. H. S., 433 E. Alder St., Walla Walla, Wash.....	1923
BRODKORB, PIERCE, 910 Judson Ave., Evanston, Ill.....	1925
BRODY, DR. J. G., Flower Hospital College, Ave. A & 64th St., New York, N. Y.....	1924
BROLEY, C. L., Mgr. Bank of Montreal, Corydon Ave., Winnipeg, Man., Can.....	1926
BRONSON, BARNARD S., 372 Hudson Ave., Albany, N. Y.....	1920
BROOKS, C. K., 10600 Quincy Ave., Cleveland, Ohio.....	1924
BROOKS, DR. EARL, Noblesville, Ind.....	1924
BROOKS, REV. EARLE AMOS, 28 Newbury St., Malden, Mass.....	1892
BROOKS, GORHAM, 60 State St., Boston, Mass.....	1919
BROOKS, S. C., Rutgers Univ., New Brunswick, N. J.....	1924
BROUNSTEIN, MORRIS, 98 Dartmouth St., Boston, Mass.....	1922
BROWN, MISS ANNIE H., 31 Maple St., Stoneham, Mass.....	1909
BROWN, MISS BERTHA L., 53 Court St., Bangor, Maine.....	1918
BROWN, EDMUND P., 48 Union St., Belfast, Maine.....	1920
BROWN, EDWARD J., Box 700, Eustis, Fla.....	1891
BROWN, MISS FRANCES A., Am. Mus. Nat. Hist., New York, N. Y.....	1925
BROWN, HARRY A., 40 Talbot St., Lowell, Mass.....	1912
BROWN, HUBERT H., 158 Glebeholme Blvd., Toronto, Ont., Can.....	1924
BROWN, JOHN A., 415 Wood St., Pittsburgh, Pa.....	1924
BROWN, WM. JAMES, 250 Oliver Ave., Westmount, Que., Can.....	1908
BROWNING, WM. HALL, 16 Cooper Square, New York, N. Y.....	1911

BRUEN, FRANK, 52-B Prospect Place, Bristol, Conn.....	1908
BRUMBAUGH, CHALMERS S., 2606 Elsinor Ave., Baltimore, Md.....	1916
BRUNNER, S. C., Chief, Sanidad Vegetal, Obrapia 37½, Habana, Cuba.....	1926
*BRUUN, CHAS. A., 421 Commerce Bldg., Kansas City, Mo.....	1919
BRYANT, WM. L., Park Museum, Providence, R. I.....	1926
BRYENS, O. M., 1312 3d St., Three Rivers, Mich.....	1924
BUCKLIN, MRS. WALTER S., 469 Walnut St., Brookline, Mass.....	1924
BULL, CHARLES L., Oradell, N. J.....	1920
BULLOCK, D. S., Casilla 71, Angol, Chile.....	1920
BUNDICK, MISS H. E., 1465 Columbia Road, N.W., Washington, D. C.....	1924
BURBANK, MRS. GEORGE E., Sandwich, Mass.....	1922
BURGESS, DR. HENRY C., Brigham Hall, Canandaigua, N. Y.....	1920
BURGESS, JOHN KINGSBURY, Chestnut St., Dedham, Mass.....	1898
BURGESS, THORNTON WALDO, 61 Washington Road, Springfield, Mass.....	1919
BURLEIGH, THOS. D., State College of Agriculture, Athens, Ga.....	1913
BURNELL, MISS E. F., 1029 N. Stanley Ave., Los Angeles, Calif.....	1923
BURNETT, WILLIAM L., Agric. College, Fort Collins, Colo.....	1895
BURNHAM, STEWART H., Dept. Botany, Cornell Univ., Ithaca, N. Y.....	1919
BURNS, JAMES RANDOLPH, 645 44th St., Des Moines, Iowa.....	1923
BURT, WM. H., Museum, Kansas Univ., Lawrence, Kans.....	1925
BURTCH, VERDI, Branchport, N. Y.....	1903
BUSHBY, FRED W., 17 Washington St., Peabody, Mass.....	1922
BUTCHER, HOWARD, JR., Stanfair and Wistar Roads, Ardmore, Pa.....	1921
BUTLER, EDWARD B. 2d, 100 Green Bay Road, Hubbard Woods, Ill.....	1925
BYRD, DR. HIRAM, Bradenton, Fla.....	1925
BYRD, WALLACE, Bradenton, Fla.....	1925
CADWALADER, CHAS. M. B., Fort Washington, Pa.....	1924
CAHN, DR. ALVIN R., 164 N. LaSalle St., Chicago, Ill.....	1917
CAIRNS, J. M., 2403 N. Washington Ave., Scranton, Pa.....	1926
CALDER, JAMES A., Rt. 1, Buena Park, Orange Co., Calif.....	1926
CALHOUN, MISS EMMA MAY, 39 Auburn St., Brookline, Mass.....	1921
CALLENDER, JAMES PHILIPS, 45 Wall St., New York, N. Y.....	1903
CALVERT, EARL, c/o Evart & Spencer, Rt. 3, Sterling, Hastings Co., Ont., Can.....	1919
CAMP, C. L., 635 North Irving Ave., Scranton, Pa.....	1926
CAMP, ROBERT D., Brownsville, Texas.....	1926
CANNON, GABRIEL, Spartanburg, S. C.....	1920
CAPEN, MISS ETHEL A., 100 West 80th St., New York, N. Y.....	1924
CAPEN, FREDERICK M., 100 West 80th St., New York, N. Y.....	1925
CAREY, HENRY R., 3115 Queen Lane, Germantown, Philadelphia, Pa.....	1925
CARLISLE, GEORGE L., JR., 550 Park Ave., New York, N. Y.....	1920
CARPENTER, REV. C. K., Baileyville, Ill.....	1894
CARPENTER, GEORGE I., 746 Lincoln Place, Brooklyn, N. Y.....	1907
CARR, WM. H., 6 Neff Place, Flushing, L. I., N. Y.....	1925
CARRIGER, H. W., 5185 Trask St., Fruitvale Station, Oakland, Calif.....	1913
CARROLL, JAMES J., 16 Courtlandt Place, Houston, Texas.....	1926

CARTER, JOHN D., Lansdowne, Pa.	1907
CARTER, T. DONALD, Am. Mus. Nat. Hist., New York, N. Y.	1921
CARTH, MRS. JEAN E., Box 1, Huntington Park, Calif.	1922
CARTWRIGHT, B. W., 213 Phoenix Block, Winnipeg, Man., Can.	1924
CARTWRIGHT, W. J., Williamstown, Mass.	1920
CASH, HARRY A., 420 Hope St., Providence, R. I.	1898
CASS, MISS ANNE, 19 Susquehanna Ave., Great Neck, L. I., N. Y.	1925
**CHAMBERLAIN, CHAUNCEY W., Hotel Hemenway, Boston, Mass.	1885
CHAMBERLAIN, EDWARD B., 182 Ashley Ave., Charleston, S. C.	1923
CHANDLER, W. P. JR., 426 S. Linden Ave., Pittsburgh, Pa.	1924
*CHAPIN, PROF. ANGIE C., Waban Hotel, Wellesley, Mass.	1896
CHAPIN, MRS. G. W., 350 Farmington Ave., Hartford, Conn.	1926
CHAPMAN, CLARENCE E., Oakland, N. J.	1924
CHAPMAN, MRS. F. M., 1158 5th Ave., New York, N. Y.	1908
CHAPMAN, HARRY E., 360 Ridgewood Rd., South Orange, N. J.	1925
CHASE, CHAS. E., 31 Euclid Ave., East Lynn, Mass.	1922
CHASE, SIDNEY, Nantucket, Mass.	1904
CHEESMAN, WM. H., Biological Survey, Washington, D. C.	1920
CHENEY, REV. R. F., St. Mark's Rectory, Southborough, Mass.	1922
CHILDS, MISS HELEN P., Chevy Chase, Md.	1922
CHILDS, HENRY EVERETT, 335 Pleasant St., Rumford, R. I.	1919
CHRISTY, BAYARD H., 403 Frederick Ave., Sewickley, Pa.	1922
*CHURCH, MISS CYNTHIA, The Point, Great Neck, L. I., N. Y.	1926
CLABAUGH, E. D., 18 Lenox Road, Berkeley, Calif.	1924
CLARK, ARTHUR L., 945 Tremont Bldg., Boston, Mass.	1920
CLARK, AUSTIN H., 1818 Wyoming Ave., Washington, D. C.	1919
CLARK, CLARENCE H., Lubec, Maine.	1913
CLARK, GEORGE R., Cynwyd, Pa.	1926
CLARK, JOSIAH H., 641 14th St., Paterson, N. J.	1895
CLARKE, CHARLES E., 51 Summit Road, Medford, Mass.	1907
CLARKE, GEORGE L., 219 Blackstone Blvd., Providence, R. I.	1924
CLARKE, MRS. NED, 105 East Chicago St., Cold Water, Mich.	1925
CLAY, MISS MARCIA B., R. D. 1, Bristolville, Ohio.	1925
CLAY, MRS. SIDNEY G., 148 Duncan Ave., Paris, Ky.	1926
CLEARY, J. J., 152 Lexington Ave., Columbus, Ohio.	1924
CLEARWATER, REV. JOHN F., Crawfordsville, Ind.	1925
CLEAVES, HOWARD H., 242 W. 109th St., New York, N. Y.	1907
CLINGMAN, GEORGE F., 7210 Euclid Ave., Chicago, Ill.	1924
COBB, DR. STANLEY, Ponkapoag, Mass.	1909
COFFIN, MRS. F. H., 1528 Jefferson Ave., Scranton, Pa.	1921
COFFIN, MRS. PERCIVAL B., 5708 Kenwood Ave., Chicago, Ill.	1905
COFFIN, ROBERT L., Japanese Beetle Lab., Riverton, N. J.	1917
COGGINS, HERBERT L., 2929 Piedmont Ave., Berkeley, Calif.	1913
COLBURN, ALBERT E., 716 S. Flower St., Los Angeles, Calif.	1891
COLE, JOHN L., 5th and Ave. K., Nevada, Iowa.	1920
COLE, DR. LEON J., Dept. Genetics, Univ. Wisconsin, Madison, Wis.	1908

COLEMAN, ROBERT H., 4 Green St., Charleston, S. C.....	1926
COLES, R. R., Nestledown Farms, Quaker Ridge, Mamaroneck, N. Y.....	1925
COLLINS, ALFRED M., 226 Columbia Ave., Philadelphia, Pa.....	1921
*COLLINS, HENRY H., Bryn Mawr, Pa.....	1923
COMMONS, FRANK W., 608 Chamber of Commerce, Minneapolis, Minn.....	1922
COMMONS, MRS. F. W., 608 Cham'r of Commerce, Minneapolis, Minn.....	1902
COMPTON, LAWRENCE V., Museum, Univ. Kansas, Lawrence, Kans.....	1926
CONGER, ALLEN C., Ohio Wesleyan Univ., Delaware, Ohio.....	1919
*CONOVER, HENRY B., 6 Scott St., Chicago, Ill.....	1920
COOK, MRS. ALBERT E., 4121 Sheridan Ave. S., Minneapolis, Minn.....	1922
COOK, MISS FANNYE A., Crystal Springs, Miss.....	1924
COOK, FRANKLIN P., Seaside Hotel, Atlantic City, N. J.....	1920
COOK, FREDERICK W., 1604 East Harrison St., Seattle, Wash.....	1915
COOK, GRANT M., 27 Tod Lane, Youngstown, Ohio.....	1924
COOK, MISS MABEL B., Box 334, Foxboro, Mass.....	1924
COOKE, GEORGE J., Ambler, Pa.....	1925
COOKMAN, ALFRED, 938 East Dryden St., Glendale, Calif.....	1920
COOLIDGE, PHILIP T., 31 Central St., Bangor, Maine.....	1919
COPE, FRANCIS R., JR., Dimock, Pa.....	1892
COPELAND, MANTON, 88 Federal St., Brunswick, Maine.....	1900
CORDIER, DR. A. H., 415 Benton Blvd., Kansas City, Mo.....	1920
CORRINGTON, J. D., Dept. Zool., Syracuse Univ., Syracuse, N. Y.....	1921
CORYELL, SHERMAN, 1500 Hood Ave., Chicago, Ill.....	1921
COUCH, LEO K., Capitol Bldg., Olympia, Wash.....	1922
COUES, DR. WM. P., 12 Monmouth Court, Brookline, Mass.....	1920
COVELL, DR. HENRY H., 1600 East Ave., Rochester, N. Y.....	1918
COX, RODMAN DAYTON, 56 College Ave., Rochester, N. Y.....	1919
CRABBE, MRS. CHAS., 80 Oak St., Far Rockaway, N. Y.....	1921
CRAIG, GLENN C., 2222 Cole St., Florence, Ala.....	1923
CRANDALL, LEE S., Zoological Park, New York, N. Y.....	1909
CRANE, MISS CLARA L., Dalton, Mass.....	1904
CRANE, LESLIE, 161 Holly St., Rutland, Vt.....	1922
CRIDDLE, NORMAN, Treesbank, Man., Can.....	1918
CROCKER, REV. WM. T., 263 Lexington Ave., New York, N. Y.....	1920
CROSS, ALBERT ASHLEY, Huntington, Mass.....	1918
CROSSMAN, ANNIE F., 49 Clinton Ave., Pittsfield, Mass.....	1920
CROWELL, MISS J. OLIVIA, Dennis, Mass.....	1918
CROWELL, MISS SARAH B., Dennis, Mass.....	1924
CUDWORTH, WARREN H., 15 Beacon Ave., Norwood, Mass.....	1919
CUMMINGS, MISS EMMA G., 16 Kennard Road, Brookline, Mass.....	1903
CUNNINGHAM, WALTER, 3009 Dunham Ave., Kansas City, Mo.....	1919
CURRIE, ROLLA P., 632 Keefer Pl., Washington, D. C.....	1895
CURRIER, E. S. 416 E. Chicago St., St. John's Sta., Portland, Ore.....	1894
CURTIS, CHARLES P., 71 Ames Bldg., Boston, Mass.....	1915
CURTIS, WILLIAM W., 267 Humboldt Ave., Roxbury, Mass.....	1924
CUTTER, MISS LUCIA B., Jaffrey, N. H.....	1920

CUYLER, WM. KENNETH, 1216 W. 22nd St., Austin, Texas.....	1923
DALE, MRS. C. FRANKLIN, 625 Cote St. Antoine Road, Westmount, Que., Can.....	1926
DALES, MRS. MARIE, 14 24th St., Sioux City, Iowa.....	1924
DALEY, MRS. EDWIN W., Olivera, Ulster Co., N. Y.....	1925
DALEY, MISS MARY WOOD, Darling P. O., Delaware Co., Pa.....	1920
DANE, MRS. ERNEST B., Chestnut Hill, Mass.....	1912
DANFORTH, STUART T., College of Agriculture, Mayaguez, P. R.....	1916
DARLEY, MRS. WM. M., Box 245, Monte Vista, Colo.....	1922
DARLINGTON, P. J., JR., 84 Corey Road, Brookline, Mass.....	1923
DAVENPORT, MRS. ELIZABETH B., 15 Green St., Brattleboro, Vt.....	1898
DAVIDSON, DR. A. M., 856 Palmerston Ave., Winnipeg, Man., Can.....	1922
DAVIDSON, MRS. GAYLORD, 2407 Lake Place, Minneapolis, Minn.....	1912
DAVIS, MISS BERTHA E., 69 Cypress St., Brookline 46, Mass.....	1920
DAVIS, HENRY W., Seaside Hotel, Ventnor, Atlantic City, N. J.....	1922
DAVIS, JOHN M., 723 L. St., Eureka, Calif.....	1920
DAVIS, R. N., Everhart Museum, Scranton, Pa.....	1920
DAY, CHESTER SESSIONS, 16 Browne St., Brookline 47, Mass.....	1897
DEAN, R. H., 720 Quintard Ave., Anniston, Ala.....	1913
DEANE, GEORGE CLEMENT, 80 Sparks St., Cambridge, Mass.....	1899
DEARBORN, SAMUEL S., 77 Summer St., Room 911, Boston, Mass.....	1919
DEGARIS, DR. CHARLES F., Johns Hopkins Univ., Baltimore, Md.....	1923
DEIGMAN, H. G., 29 Bank St., Princeton, N. J.....	1925
DELOACH, R. J. H., 5541 Dorchester St., Chicago, Ill.....	1910
DELURY, DR. RALPH E., Dominion Observatory, Ottawa, Ont., Can.....	1920
DEMILLE, JOHN B., 559 W. 183rd St., New York, N. Y.....	1922
DENMEAD, TALBOTT, Biological Survey, Washington, D. C.....	1923
DENNY, MISS MARTHA, 111 High St., Brookline, Mass.....	1924
DENSMORE, MISS MABEL, 910 4th St., Red Wing, Minn.....	1910
DERBY, DR. RICHARD, Oyster Bay, L. I., N. Y.....	1898
DESCHAUENSE, R. M., 1213 Spruce St., Philadelphia, Pa.....	1925
DEWEY, DR. CHARLES A., 174 Spring St., Rochester, N. Y.....	1900
DEXTER, PROF. JOHN SMITH, Univ. Porto Rico, Rio Piedras, P. R.....	1919
DICE, DR. LEE RAYMOND, Univ. Mus., Ann. Arbor, Mich.....	1918
DICKENS, MISS ELIZABETH, Block Island, R. I.....	1921
DiLEO, MRS. GUILIA, 7606 N. Ashland Ave., Chicago, Ill.....	1925
DILLE, FREDERICK M., Valentine, Nebr.....	1892
DINGLE, EDWARD VON S., Mt. Pleasant, S. C.....	1920
DINGMAN, RUSSELL G., Highland Crescent, York Mills, Ont., Can.....	1926
DIXON, FREDERICK J., 111 Elm Ave., Hackensack, N. J.....	1891
DONALDSON, JOHN J., Greenville, Pa.....	1925
DONOHU, M. T., The Balfour, 2000 16th St., N. W., Washington, D. C.....	1925
DOOLITTLE, E. A., Box 44, Painesville, Ohio.....	1921
DOOLITTLE, WILL O., Box 432, Rockford, Ill.....	1924
DORSEY, GEORGE A., 324 West John Wesley Ave., College Park, Ga.....	1926
DREIER, THEODORE, 27 Weld Hall, Cambridge, Mass.....	1919

DRESSEL, EVAN C., Rt. 2, Poland, Ohio.....	1924
DuBois, A. Dawes, 125 Oak Grove St., Minneapolis, Minn. (1905).....	1918
DuFour, Miss Laura E., 1524 Boyd Ave., Racine, Wis.....	1924
DUDLEY, MRS. SARAH H., Lyman School Branch, Berlin, Mass.....	1924
DUER, HARRY ELDON, 519 Schofield Bldg., Cleveland, Ohio.....	1921
DUPRESNE, FRANK, Fairbanks, Alaska.....	1924
DUNBAR, MISS LULA, Rt. 1, Elkhorn, Wis.....	1918
DUNKELBERGER, H. W., P. O. Box 6, Flourtown, Montgomery Co., Pa.....	1923
DUNN, JOHN W. G., 1033 Lincoln St., St. Paul, Minn.....	1923
DURFEE, OWEN, 727 Madison St., Fall River, Mass.....	1887
DURFEE, MRS. OWEN, 727 Madison St., Fall River, Mass.....	1923
DYE, HAROLD G., 18 Conklin Ave., Rochester, N. Y.....	1921
DYKE, ARTHUR CURTIS, 205 Summer St., Bridgewater, Mass.....	1902
EANES, ROBERT H., 401 Park Place, Austin, Texas.....	1923
EARL, THOMAS M., Rt. 2, Box 94, Xenia, Ohio.....	1921
EARLE, OSBORNE, 17 Bates St., Cambridge, Mass.....	1919
EASTMAN, COL. FRANCIS B., P. O. Box 334, Baltimore, Md.....	1909
EASTWOOD, S. K., Elberon Apts., East Liberty Sta., Pittsburgh, Pa.....	1925
EATON, MISS MARY S., 8 Monument St., Concord, Mass.....	1909
EATON, SCOTT HARRISON, Box 653, Lawrenceville, Ill.....	1912
EATON, WARREN FRANCIS, c/o Wellington, Sears & Co., 66 Worth St., New York, N. Y.....	1921
EDMONDS, JOHN, Royal Ontario Museum, Toronto, Ont., Can.....	1926
**EDSON, JOHN M., Marietta Road, Bellingham, Wash.....	1886
EDSON, WM. L. G., Highland Park, Rochester, N. Y.....	1916
EDWARDS, D. KEMP, 280 Mariposa Ave., Rockcliffe, Ottawa, Ont.....	1926
EHINGER, DR. CLYDE E., 730 Grand Ave., Keokuk, Iowa.....	1904
ELFRIG, PROF. C. W. GUSTAVE, 504 Monroe Ave., Oak Park, Ill.....	1901
EKBLAW, WALTER ELMER, Box 431, North Grafton, Mass.....	1910
ELLIOTT, MRS. JANE SHIELDS, 2900 Q. St., N. W., Washington, D. C.....	1921
ELLIS, MRS. ELLA HAINES, 910 Grattan St., Los Angeles, Calif.....	1924
ELLIS, RALPH, JR., 2420 Ridge Road, Berkeley, Calif.....	1924
ELLIS, RAYMOND B., Aetna St., Connellsville, Pa.....	1926
ELROD, MRS. WALTER DEW., Box 103, Okmulgee, Okla.....	1924
EMERSON, W. OTTO, Route 1, Box 39, Hayward, Calif.....	1916
EMILIO, S. GILBERT, 156 Hobart St., Danvers, Mass.....	1922
EMLEN, ARTHUR COPE, "Awbury," Germantown, Philadelphia, Pa.....	1921
EMLEN, JOHN T. JR., 36 W. School Lane, Germantown, Phila., Pa.....	1925
*EMMET COL. ROBERT T., 48 Washington Ave., Schenectady, N. Y.....	1926
ENO, HENRY LANE, Princeton, N. J.....	1918
ERICHSEN, W. J., 2311 Barnard St., Savannah, Ga.....	1919
ERSKINE, RICHARD, Wenonah, N. J.....	1926
ESKRIDGE, MISS VIRGINIA, 5 Bowdoin Ave., Dorchester, Mass.....	1925
ESTEN, SIDNEY R., 301 S. East St., Pendleton, Ind.....	1925
ESTERLY, DR. CALVIN O., Occidental College, Los Angeles, Calif.....	1921
EVANS, DR. EVAN M., 550 Park Ave., New York, N. Y.....	1916

EVERATT, E. A., Waseca, Minn.....	1925
EYER, GEO. A., Short Hills, N. J.....	1918
FAGAN, CHAS. L., Rt. 2, Box 58, Rahway, N. J.....	1922
FAIR, FRANK D., 272 S. Oakland Ave., Sharon, Pa.....	1925
FAIRMAN, MISS MARIAN, 4744 Kenwood Ave., Chicago, Ill.....	1920
FARGO, WILLIAM G., 506 Union St., Jackson, Mich.....	1923
FARLEY, FRANK L., Camrose, Alberta, Can.....	1920
FARLEY, JOHN M., JR., 46 S. Broadway, White Plains, N. Y.....	1922
FAUVEL, BERTRAM A., 321 McLeod St., Ottawa, Ont., Can.....	1926
FAY, S. PRESCOTT, 2 Otis Place, Boston, Mass.....	1907
*FEARING, GEO. R., 168 Beacon St., Boston, Mass.....	1924
FELGER, ALVA HOWARD, North High School, Denver, Colo.....	1898
FELL, MISS EMMA TREGO, Holicong, Bucks Co., Pa.....	1903
FELL, MRS. NELSON, Warrenton, Va.....	1923
FERGUSON, HARRY L., 247 Park Ave., New York, N. Y.....	1920
*FERGUSON, HOMER L., Newport News Ship Bldg., Newport News, Va.....	1926
FESER, MRS. ESTELLA C., 840 W. 66th St., Chicago, Ill.....	1925
FIELD, MRS. MARSHALL, 38 Wall St., New York, N. Y.....	1926
FIELD, WM. L. W., Milton Acad., Milton, Mass.....	1920
FINFROCK, CHARLES M., 3186 Oak Road, Cleveland Heights, Ohio.....	1925
FISH, HAROLD D., Univ. Pittsburgh, Pittsburgh, Pa.....	1924
FISHER, MISS ELIZABETH WILSON, Ambler, Pa.....	1896
FISHER, DR. G. CLYDE, American Mus. Nat. Hist., New York, N. Y.....	1908
FISHER, PROF. RICHARD T., Petersham, Mass.....	1924
FLEISHER, EDWARD, 1068 Park Place, Brooklyn, N. Y.....	1916
FLETCHER, L. B., 54 Cotswold Road, Brookline, Mass.....	1921
FLETCHER, MRS. MARY E., Proctorsville, Vt.....	1898
FLOYD, CHAS. BENTON, 454 Wolcott St., Auburndale, Mass.....	1916
FLOYD, J. L. 508 New Harter Bank Bldg., Canton, Ohio.....	1921
FOLLETT, RICHARD E., 2134 Dime Bank Bldg., Detroit, Mich.....	1926
FOOT, DR. NATHAN CHANDLER, 3560 Interwood Place, Clifton, Cincinnati, Ohio.....	1916
FORBES, RALPH E., 328 Adams St., Milton, Mass.....	1917
FORD, EDWARD R., 317 Washington St., S. E., Grand Rapids, Mich.....	1920
FORD, MISS LOUISE PETIGRU, "The Heights," Aiken, S. C.....	1919
*FOSTER, FRANCIS A., Edgartown, Mass.....	1918
*FOSTER, FRANK B., P. O. Box 87, Haverford, Pa.....	1916
FOSTER, DR. G. S., 967 Elm St., Manchester, N. H.....	1921
FOWLER, FREDERICK HALL, 221 Kingsley Ave., Palo Alto, Calif.....	1892
FOWLER, HENRY W., Acad. Nat. Sciences, Philadelphia, Pa.....	1898
FOX, MISS CAROLINE A., Center Road, Hillsboro, N. H.....	1924
FOX, MISS JENNIE E., Sparkhill, Rockland Co., N. Y.....	1925
FRANCKE, MRS. L. J., Glen Head, L. I., N. Y.....	1924
FRANKEL, MRS. HENRY, 301 Tonawanda Drive, Des Moines, Iowa.....	1925
FRASER, DONALD, Johnstown, N. Y.....	1902
FRAZAR, MRS. M. ABBOTT, 84 Abbottsford Road, Brookline, Mass.....	1925

FRENCH, MRS. A. J., R. F. D. 1, Carlton, Ore.....	1921
FRENCH, DR. CHAS. E., 62 Holyrood Ave., Lowell, Mass.....	1923
FRENCH, CHARLES H., 950 Washington St., Canton, Mass.....	1904
FRENCH, MRS. CHAS. H., 950 Washington St., Canton, Mass.....	1908
FRENCH, DANIEL C., 12 W. 8th St., New York, N. Y.....	1922
FRENCH, MRS. MENA V., Box 171, Wayland, Mass.....	1923
*FREY, MRS. EDITH K., 814 3rd St., Jackson, Mich.....	1923
FRIEDMAN, RALPH, 32 Garden Place, Brooklyn, N. Y.....	1921
FRIEDMANN, DR. HERBERT, Biol. Lab., Brown University, Providence, R. I.....	1921
FRIEDRICH, GEORGE W., 3029 Belmont Ave., Chicago, Ill.....	1925
FROST, ALLEN, c/o Trussell Mfg. Co., Poughkeepsie, N. Y.....	1919
FRY, MRS. GLADYS GORDON, 66 Eagle Rock Way, Montclair, N. J.....	1925
*FUGUET, HOWARD, 560 Bullitt Bldg., Philadelphia, Pa.....	1919
FULLER, MRS. ANNIE L., Hancock, N. H.....	1922
FULLER, ARTHUR B., 2717 Euclid Ave., Cleveland, Ohio.....	1922
FULLER, HENRY C., 3704 Huntington St., Washington, D. C.....	1916
FUNK, MRS. A. B., 649 Harwood Drive, Des Moines, Iowa.....	1924
GAEDE, A. HENRY, 3101 N. 10th St., Philadelphia, Pa.....	1925
GAMMAGE, ECTOR R., P. O. Box 55, Westlake, La.....	1925
GANDER, FRANK F., P. O. Box 395, East San Diego, Calif.....	1926
GAINER, ALBERT F., 2507 Ashwood Ave., Nashville, Tenn.....	1917
GARBE, ROLLIN, 307 Runnymede Rd., Toronto, Ont., Can.....	1926
GARDINER, CHARLES BARNES, 175 W. Main St., Norwalk, Ohio.....	1903
GARDNER, ASTON COLBROOK, c/o Westminster Bank, Rowlands Road, West Worthing, Sussex, England.....	1919
GARDNER, MRS. E. P., 140 Gibson St., Canandaigua, N. Y.....	1920
GARDNER, DR. LEON L., Fort Riley, Kansas.....	1924
GARDNER, MRS. W. H., Bucksport, Maine.....	1920
GARLAND, MISS CAROLINE H., 65 Silver St., Dover, N. H.....	1924
*GAUNTLETT, FREDERICK J., 3225 18th St., N. W., Washington, D. C.....	1925
GAY, KARL E., 1850 Montecito Way, San Diego, Calif.....	1926
GEDDES, JOHN M., 331 High St., Williamsport, Pa.....	1924
GEIST, R. M., 811 Euclair Ave., Bexley, Columbus, Ohio.....	1923
GERLACK, MRS. MARION A., 1002 Downer Ave., Milwaukee, Wis.....	1926
GEY, THEODORE A., P. O. Box 363, Norristown, Pa.....	1924
GIANINI, CHAS. A., Poland, N. Y.....	1911
GIFFORD, PAUL C., 73 Whittier Ave., Olneyville, R. I.....	1921
GIFFORD, DR. HAROLD, 3636 Burt St., Omaha, Nebr.....	1922
GIGNOUX, CLAUDE, 73 Tunnel Road, Berkeley, Calif.....	1921
GILBERT, MRS. F. M., Walpole, N. H.....	1919
GILLESPIE, JOHN A., 313 Sharp Ave., Glenolden, Pa.....	1923
GILLESPIE, MRS. J. A., 313 Sharp Ave., Glenolden, Pa.....	1924
GILLIAM, ROBERT A., 1123 Cedar Hill Ave., Sta. A., Dallas, Tex.....	1920
GILLIN, JAMES R., Ambler, Pa.....	1921
GILLIS, FRANK, Anoka, Minn.....	1922

GILMAN, M. FRENCH, Banning, Calif.	1907
GILMORE, ALBERT F., 84 Garfield St., Watertown, Mass.	1924
GLADDING, MRS. JOHN R., Thompson, Conn.	1912
GLEASON, MRS. C. H., 700 Madison Ave., S. E., Grand Rapids, Mich.	1917
GLENN, DONALD, Box 243, Franklin, Pa.	1923
GLOYD, HOWARD K., Ottawa Univ., Ottawa, Kansas.	1920
GOELITZ, WALTER A., 22 Nunda Boulevard, Rochester, N. Y.	1916
GOLDSMITH, GLENN W., 123 E. Washington St., Colorado Springs, Colo.	1926
GOOD, PROF. HENRY G., Alabama Polytechnic Inst., Auburn, Ala.	1925
GOODRICH, MISS JULIET T., Land o'Lakes, Vilas County, Wis.	1904
GORDON, HARRY E., 307 Laburnum Crescent, Rochester, N. Y.	1911
GORDON, KENNETH, 304 Garfield St., Ft. Collins, Colo.	1924
GORDON, ROBERT B., 2281 Indianola Ave., Columbus, Ohio.	1923
GORDON, SETH E., 1218 Greenleaf St., Evanston, Ill.	1924
GORMLEY, A. LIGUORI, 79 John St., N., Arnprior, Ont., Canada.	1918
GORST, CHARLES C., 28 Beauford Road, Boston 30, Mass.	1916
GOULD, JOSEPH E., 320 Springfield Ave., Campostella Heights, Nor- folk, Va.	1889
GOWANS, MISS ETHEL, 308 S. Lincoln St., Kent, Ohio.	1921
GRAHAM, EDW. H., Carnegie Museum, Pittsburgh, Pa.	1924
GRANGE, WALLACE B., Ladysmith, Wis.	1920
GRANGER, WALTER W., Amer. Mus. Nat. Hist., New York, N. Y.	1891
GRANT, CLEVELAND P., Field Museum, Chicago, Ill.	1924
GRANT, MARTIN L., 92 Morgan St., Oberlin, Ohio.	1926
GRANT, WM. W., 816 S. Main St., Geneva, N. Y.	1910
GRASETT, F. G., 535 Green Bay Road, Glencoe, Ill.	1923
GRAVES, MRS. CHARLES B., 43 Granite St., New London, Conn.	1905
GRAY, A. E., 1021 Manzana Court, Albuquerque, N. M.	1923
GRAY, GEORGE M., Box 89, Woods Hole, Mass.	1916
GRAY, GEORGE W., Greenvale Farm, Poughkeepsie, N. Y.	1920
GREELEY, JOHN R., 241 Linden Ave., Ithaca, N. Y.	1925
GREEN, HORACE OAKES, 220 North Ave., Wakefield, Mass.	1917
*GREEN, MORRIS MILLER, 39 Wyoming Ave., Ardmore, Pa.	1921
GREENÉ, EARLE R., 642 Orme Circle, Atlanta, Ga.	1921
GREENLAW, JOS. M., 28 Budleigh St., Beverly, Mass.	1920
GREENOUGH, HENRY VOSE, 39 Worthington Road, Brookline, Mass.	1901
GREENWOOD, CHRISTOPHER, Breda P. O., Alberta, Can.	1926
GREGORY, REV. C. E., Box 215, Morganton, N. C.	1922
GREGORY, STEPHEN S., JR., 345 Barry Ave., Chicago, Ill.	1906
GREVE, FREDERICK J., 526 Grant Ave., Brooklyn, N. Y.	1926
GRIFFITHS, MISS JANET R., 289 East Park Ave., Highland Park, Ill.	1926
GRIMES, SAMUEL A., 3615 Mayflower St., Jacksonville, Fla.	1925
GROMME, OWEN J., Public Museum, Milwaukee, Wis.	1924
GRUNER, MISS CLARA, Route 2, Newton, N. J.	1925
GUNTHER, DR. HORACE, Library, Mills College, Calif.	1919

GUTHRIE, MRS. TRACY W., Edgeworth, Sewickley, Pa.	1924
HADELER, E. W., 520 S. State St., Painesville, Lake Co., Ohio.	1920
HADLEY, ALDEN H., Nat. Assn. Audubon Societies, 1974 Broadway, New York, N. Y.	1906
HAGNER, DR. FRANCIS R., 1824 19th St., N. W., Washington, D. C.	1926
HAHN, WM. JR., 403 Durst Ave., Greenwood, S. C.	1925
HAILE, H. PENNINGTON, 28 Edwards St., Springfield, Mass.	1919
HAINES, ROBERT L., 54 E. Main St., Moorestown, N. J.	1924
HALL, E. RAYMOND, Mus. Vert. Zool., Univ. of Cal., Berkeley, Calif.	1922
HALLINAN, THOMAS, 212 Madison Ave., Paterson, N. J.	1919
HALLINEN, JOSEPH E., Rt. 1. Cooperton, Okla.	1919
HALVERSON, DR. HAROLD M., 312 Pearl St., Yankton, S. Dak.	1924
HAMILL, MRS. LAFAYETTE C., 477 Grove St., Worcester, Mass.	1924
HAMILTON, WM. JOHN JR., Dept. Biology, Cornell Univ., Ithaca, N. Y.	1924
HAMMOND, DR. ROLAND, 41 Boylston Ave., Providence, R. I.	1924
HANDLEY, CHAS. O., 403 E. Jefferson St., Thomasville, Ga.	1916
HANDBAKER, RALPH, Colo, Iowa.	1922
HANKINSON, THOS. L., 96 Oakwood Ave., Ypsilanti, Mich.	1897
HANNA, WILSON CREAL, 141 East F. St., Colton, Calif.	1919
HARDING, MRS. R. B., 94 Westbourne Terrace, Brookline, Mass.	1922
HARING, MRS. INEZ M., Woodland, Ulster Co., N. Y.	1921
HARKIN, HON. JAMES B., Commr. Canadian Nat. Parks, Ottawa, Can.	1921
HARRINGTON, MRS. A. B., Lincoln, Mass.	1919
HARRINGTON, DR. PAUL, 813 Bathurst St., Toronto, Ont., Can.	1922
*HARRIS, WM. P., 15410 Windmill Point Drive, Grosse Pointe Parks, Mich.	1925
*HARRISON, GEO. L., JR., 1520 Locust St., Philadelphia, Pa.	1919
HARROLD, C. G., 206 Vaughan St., Winnipeg, Man., Can.	1923
HART, CECIL, Rt. 1, Box 432, Montebello, Los Angeles Co., Calif.	1921
HART, MALCOLM D., Ashland, Va.	1924
HART, W. S., Box 1185, Montreal, Que., Can.	1926
HARTER, SAMUEL G., O'Rourke Zool. Institute, Balboa Park, San Diego, Calif.	1926
HARTLEY, GEO. INNESS, Southampton, L. I., N. Y.	1919
HARVEY, JOHN L., Mercantile Bldg., Waltham, Mass.	1916
HASBROUCK, HENRY C., 895 West End Ave., New York, N. Y.	1920
*HASKELL, MISS SADIA, 3828 30th St., Mt. Rainier, Md.	1916
HASTINGS, WALTER E., Box 1, South Lyon, Mich.	1921
HATHAWAY, ALTON H., 25 Oakland St., Lexington, Mass.	1921
HATHAWAY, MRS. E. L., Spring St., Rt. 1, W. Bridgewater, Mass.	1920
HATHAWAY, H. S., Norwood and Thorn Aves, South Auburn, R. I.	1897
HAULTAIN, C. F., Ardfree Fur Farm, Rt. 1, Campbelloft, Ont., Can.	1923
HAVEMEYER, H. O., Mahwah, N. J.	1893
HAVEMEYER, H. O., JR., Mahwah, N. J.	1919
HAVEN, HERBERT M. W., 500 Forest Ave., Portland, Maine.	1920
HAWARTH, MISS M. M. ALICE, Mosscroft, Edgeworth, Sewickley, Pa.	1925

HAYES, EDWARD G., 50 Gibson St., Canandaigua, N. Y.....	1924
HAYES, SAMUEL P. JR., South Hadley, Mass.....	1924
HEERMANS, MARTHA, Hayden, Arizona.....	1924
HEGEMAN, MRS. CHAS. S., 27 Hillside Ave., Montclair, N. J.....	1923
HEGNER, FRANK A., 513 Hill St., Sewickley, Pa.....	1924
HEILFURTH, FRITZ, 4 a. A. S. 22, Colegio Aleman, Guatemala City, Guatemala.....	1926
HEILNER, VAN CAMPEN, Spring Lake Beach, N. J.....	1925
*HELME, ARTHUR H., Miller Place, N. Y.....	1888
HELMUTH, WM. TOD, 3RD, 47 Karlstrasse, Freiburg, 1 Br., Germany.....	1923
HEMPHILL, ASHTON ERASTUS, 598 Dwight St., Holyoke, Mass.....	1919
HENDERSON, A. D., Belvedere, Alberta, Canada.....	1924
HENDERSON, JUNIUS, 1305 Euclid St., Boulder, Colo.....	1903
HENDERSON, WALTER C., 8 Magnolia Parkway, Chevy Chase, Md.....	1917
HENSHAW, SAMUEL, Mus. Comp. Zool., Cambridge, Mass.....	1924
HERMAN, THEODORE L., 273 Neal Dow Ave., New Brighton, N. Y.....	1916
HERMAN, DR. WILLIAM C., 19 West 7th St., Cincinnati, Ohio.....	1921
HERRERA, A. L., 2a Cipres 64, City of Mexico, Mexico.....	1926
*HERRICK, HAROLD, 95 Maiden Lane, New York, N. Y.....	1905
HERRICK, NEWBOLD L., 60 Wall St., New York, N. Y.....	1913
HERRICK, N. LAWRENCE, Cedarhurst, N. Y.....	1917
HIATT, BENJAMIN, 512 W. Coulter St., Germantown, Philadelphia, Pa.....	1925
HIBBERT, MRS. H., 17 Parkside Place, Cote de Neiges Road, Montreal, Que., Can.....	1926
HILDRETH, MISS ELLEN E., 6 Linnaean St., Cambridge, Mass.....	1922
HILL, MRS. THOMAS R., 4011 Baltimore Ave., Philadelphia, Pa.....	1903
HILLMER, DAVIS B., 453 Canfield Ave. W., Detroit, Mich.....	1926
HIMMEL, WALTER J., Macalester College, St. Paul, Minn.....	1920
HINCKLEY, GEO. LYMAN, Redwood Library, Newport, R. I.....	1912
HINE, ASHLEY, 8131 Euclid Ave., Chicago, Ill.....	1922
HINE, PROF. JAMES STEWART, Ohio State Univ., Columbus, Ohio.....	1899
HITCHCOCK, FRANK H., Metropolitan Club, 1 East 60th St., New York, N. Y.....	1921
HIX, GEORGE E., 337 72nd St., Brooklyn, N. Y.....	1904
HOFFMAN, IRVIN N., 1513 30th St. N. W., Washington, D. C.....	1924
HOFFMAN, PAUL WM., 1573 12th St., Milwaukee, Wis.....	1924
HOLLAND, HAROLD MAY, Galesburg, Ill.....	1910
HOLLAND, DR. WILLIAM J., Carnegie Museum, Pittsburgh, Pa.....	1899
HOLLISTER, G. B., 4 E. 5th St., Corning, N. Y.....	1919
HOLLISTER, WARREN D., Delavan, Wis.....	1901
HOLLOMAN, MRS. REED, Miraflores, Santa Fe, N. M.....	1924
HOLMAN, JOHN P., Southport, Conn.....	1922
HOLMAN, RALPH H., 15 Whiting Road, Wellesley Hills, Mass.....	1907
HOMER, FRED L., 916 Adelaide St., Pittsburgh, Pa.....	1924
HONYWILL, ALBERT W., JR., 2947 Collingwood Ave., Detroit, Mich.....	1907

HOPKINS, GEORGE I., 841 Beech St., Manchester, N. H.....	1922
HORSEY, RICHARD E., Highland P'k, Reservoir Ave., Rochester, N. Y.	1919
HORSFALL, ROBERT BRUCE, c/o Nature Magazine, 1214 16th St., N. W., Washington, D. C.....	1905
HOUGHTON, CLARENCE, 533 Washington Ave., Albany, N. Y.....	1920
HOWATT, DR. G. A., 1922 F. St., Eureka, Calif.....	1924
HOWE, CLIFTON D., Univ. Toronto, Toronto, Ont., Can.....	1921
HOWITT, HENRY, 52 Lyon Ave., Guelph, Ont., Can.....	1924
HOWLAND, HENRY R., Library Bldg., Buffalo, N. Y.....	1924
HOWLAND, R. H., 1 Mountain Place, Upper Montclair, N. J.....	1902
HUBBARD, MRS. FRANK D., 81 Barnett St., New Haven, Conn.....	1923
HUBBARD, PROF. MARIAN E., Hollowell House, Wellesley 81, Mass...	1916
HUBER, MRS. WHARTON, 225 St. Marks Square, Philadelphia, Pa....	1926
HUEY, L. M., Nat. Hist. Mus., Balboa Park, San Diego, Calif.....	1920
HUFF, PROF. N. L., 1219 7th St., S. E., Minneapolis, Minn.....	1924
HUGHES, GEO. T., Box 153, Plainfield, N. J.....	1919
HUGHES, DR. W. E., 3945 Chestnut St., Philadelphia, Pa.....	1920
HULL, ARCHIE V., 423 West Forest St., Brigham City, Utah.....	1926
HUNN, JOHN T. SHARPLESS, 1218 Prospect Ave., Plainfield, N. J.....	1895
HUNT, CHRESWELL JOHN, 5943 Rice St., Chicago, Ill.....	1919
HUNT, MISS LUCY O., 185 Beacon St., Hartford, Conn.....	1919
HUNTER, MRS. KATHARINE U., Cupola Farm, West Claremont, N. H.	1923
HURD, MISS FRANCES A., 43 West Ave., S. Norwalk, Conn.....	1919
HUTCHINSON, CONSTANT E., 2ND, The Phoenix Bank, Phoenix, N. Y.	1923
HYDE, A. SIDNEY, 606 Penn. Ave., Urbana, Ill.....	1921
HYDE, MRS. S. E., c/o Mayfield Stage, Boise, Idaho.....	1918
HYDE, T. B., Am. Mus. Nat. Hist., New York, N. Y.....	1925
HYSLOP, SAMUEL, 42 Bellevue St., Newton, Mass.....	1919
IJAMS, H. P., R. F. D. 9, Knoxville, Tenn.....	1922
INGALLS, MRS. L. O., 51 Westford Circle, Springfield, Mass.....	1925
**INGERSOLL, ALBERT M., 908 F St., San Diego, Calif.....	1885
INGERSOLL, R. STURGIS, 1035 Land Title Bldg., Philadelphia, Pa...	1925
ISHAM, CHAS. B., 909 Valley Rd., Upper Montclair, N. J.....	1891
JACKSON, DR. HARTLEY H. T., Biological Survey, Washington, D. C.	1910
JACKSON, RALPH W., R. D. 1, Box 70, Cambridge, Md.....	1918
JACKSON, ROBERT L., Box 112, Ohio, Ill.....	1924
JACOBS, WM. F., 404 So. Washington St., Waynesburg, Pa.....	1924
JACOT, E. C., Box 462, Prescott, Ariz.....	1923
JAMES, MRS. A. O., 302 Professional Bldg., Richmond, Va.....	1925
JAMES, NORMAN, P. O. Drawer D2, Baltimore, Md.....	1913
JANVRIN, DR. E. R. P., 515 Park Ave., New York, N. Y.....	1919
JAQUES, F. L., Amer. Mus. Nat. Hist., New York, N. Y.....	1924
JAY, WILLIAM, 12 Westview St., Mt. Airy, Philadelphia, Pa.....	1921
JENKS, CHAS. W., Bedford, Mass.....	1912
JENNINGS, DR. GEO. H., Jewett City, Conn.....	1918
JENNINGS, RICHARD D., 227 Harrison St., East Orange, N. J.....	1913

JENNISON, FRANK J., Box 939, Marquette, Mich.....	1925
JENSEN, MISS CAROLYN, Mound, Minn.....	1925
JENSEN, JESSE P., Box 364, Dassel, Minn.....	1926
JENSEN, J. K., U. S. Indian School, Sante Fe, N. M.....	1912
JOHNSON, PROF. CHAS. E., College of Forestry, Syracuse, N. Y.....	1919
JOHNSON, MRS. GRACE P., Museum Nat. Hist., Springfield, Mass.....	1908
JOHNSTON, I. H., South Hills, Charleston, W. Va.....	1922
JONES, HAROLD C., 352 W. College St., Oberlin, Ohio.....	1924
JONES, JESSE L., 198 Dewey St., Edgeworth, Pittsburgh, Pa.....	1921
JONES, DR. LOMBARD CARTER, Falmouth, Mass.....	1917
JONES, NELSON T., Royal Ontario Mus., Toronto, Ont., Can.....	1925
JONES, S. PAUL, 519 W. College Ave., Waukesha, Wis.....	1920
JONES, WILLIAM F., Norway, Maine.....	1918
JORDAN, A. H. B., Lowell, Wash.....	1888
JUMP, MRS. EDWIN R., 97 Oakleigh Road, Newton, Mass.....	1910
JUNG, CLARENCE S., 553 Prospect Ave., Milwaukee, Wis.....	1921
KAHL, P. H. I., Carnegie Museum, Pittsburgh, Pa.....	1924
KAHMAN, KARL W., Rt. 2, Hayward, Wis.....	1925
KANE, MRS. SUSAN MARY, Vaughn, Wash.....	1919
KEALY, MISS LULU, 14 Blackburn Ave. Ottawa, Ont., Can.....	1926
KEAYS, JAMES EDWARD, 328 St. George St., London, Ont., Can.....	1899
KEE, HUNTER 36 9th Ave., Marlinton, W. Va.....	1920
KEEN, MISS ANGELINE M., Lytle Star Route, Colorado Springs, Colo.....	1925
KEESLER, RAY L., Box 147, Forestville, Butler Co., Pa.....	1924
KELLOGG, RALPH T., Silver City, N. M.....	1913
KELLY, ORVAL E., P. O. Box 28, Warkworth, Ont., Can.....	1926
KELSO, DR. JOHN E. H., Edgewood, Lower Arrow Lake, B. C., Can.....	1915
KENDEIGH, S. CHARLES, 136 Woodland Ave., Oberlin, Ohio.....	1923
KENNAN, MISS RUTH R., 311 West Liberty, Medina, Ohio.....	1922
KENNEDY, DR. HARRIS, Readville, 37, Mass.....	1916
*KENNEDY, HARRY H., Box 710, Reno, Nev.....	1920
KENNEDY, H. N., 6541 Grand River Ave., Detroit, Mich.....	1924
KENNEDY, MRS. R. A., The Westminster, Ottawa, Ont., Can.....	1926
KENT, DUANE E., 39 Moore Place, Rutland, Vt.....	1913
KENT, EDWARD G., 9 Highland Ave., Madison, N. J.....	1919
KENT, EDWIN C., 80 William St., New York, N. Y.....	1907
KEPNER, MRS. C. M., R. F. D. 2, Randallstown, Md.....	1922
KERN, SAMUEL B., 662 Main St., Slatington, Pa.....	1925
KERR, DR. WM., Ridotto Block, Bay City, Mich.....	1926
KERSHNER, CLAUDE H., 438 W. Bringham St., Germantown, Phila- delphia, Pa.....	1925
KEYES, MRS. C. F., 2225 Lake of Isles Blvd., Minneapolis, Minn.....	1922
*KIDDER, NATHANIEL T., Milton, Mass.....	1906
KIEFNER, C. H., 2115 Second Nat. Bank Bldg., Houston, Texas.....	1926
KIEMLE, HENRY W., JR., Salt Point, Dutchess Co., N. Y.....	1925
KILGORE, WILLIAM, JR., Zool. Mus., Univ. Minn., Minneapolis, Minn.....	1906

KILGUS, J. FRANK, JR., 422 High St., Williamsport, Pa.....	1922
KING, MISS GRACE W., 11 Heath Hill, Brookline, Mass.....	1924
KING, IRVING J., Collins Center, Erie Co., N. Y.....	1924
KING, LEROY, 27 E. 83rd St., New York, N. Y.....	1901
KIRKHAM, MRS. JAMES W., 275 Maple St., Springfield, Mass.....	1904
*KIRKHAM, STANTON D., 152 Howell St., Canandaigua, N. Y.....	1910
KIRKHAM, WM. B., 100 Mill St., Springfield, Mass.....	1922
KIRKPATRICK, DONALD, 710 Clay Ave., Scranton, Pa.....	1926
KIRKPATRICK, HARRY C., 1166 Water St., Meadville, Pa.....	1921
KIRKWOOD, FRANK C., R. F. D. 3, Monkton, Md.....	1892
*KIRN, ALBERT J. B., Box 157, Somerset, Texas.....	1918
KITTREDGE, JOSEPH, JR., Lake States Forest Exp. Sta., Univ. Farm, St. Paul, Minn.....	1910
KLOSEMAN, MISS J. E., Beal Hall, 20 Charlesgate W., Boston, Mass..	1909
KLOTZ, CHAS. D., 722 Prospect Ave., Winnetka, Ill.....	1923
KNAEBEL, ERNEST, 3707 Morrison St., Washington, D. C.....	1906
KNAPPEN, MISS PHOEBE M., 2925 Tilden St., N. W., Washington, D. C.	1924
KNAPPEN, MRS. T. M., 2925 Tilden St., N. W., Washington, D. C..	1926
KNAUZ, MISS MARIE B., 1217 Trevanion Ave., Regent Sq., Pittsburgh, Pa.....	1924
*KNICKERBOCKER, CHAS. K., 410 N. Michigan Ave., Chicago, Ill....	1922
KNOLHOFF, FERDINAND WILLIAM, Argyle Park, Bablyon, L. I., N. Y.	1890
KOBBE, FREDERICK W., 49 Wall St., New York, N. Y.....	1921
KOPMAN, HENRY H., 1329 Webster St., New Orleans, La.....	1921
KRETZMANN, DR. P. E., 801 DeMun Ave., St. Louis, Mo.....	1913
KUBICHEK, W. F., Coe College, Cedar Rapids, Iowa.....	1919
KUERZI, J. F., 978 Woodycrest Ave., Bronx, New York, N. Y.....	1925
KUSER, ANTHONY R., Bernardsville, N. J.....	1908
KUSER, MRS. ANTHONY R., Bernardsville, N. J.....	1910
KUSER, JOHN DRYDEN, Bernardsville, N. J.....	1910
KUTCHIN, DR. VICTOR, Green Lake, Wis.....	1922
LABARTHE, JULES, c/o Georgian Manganese Co., Tchiatouri, Georgia, U.S.S.R.....	1920
LACEY, MILTON S., 875 Main St., Bridgeport, Conn.....	1925
LA DOW, STANLEY V., 56 W. 12th St., New York, N. Y.....	1913
LA FRANCE, P. A., Laconia, N. H.....	1926
LA FRANCHISE, MISS MARY L. Y., 47 Sherbrooke Ave., Hull, Que., Can.	1921
LAING, HAMILTON M., Comox, B. C., Can.....	1917
LAMB, CHAS. R., 161 Summer St., Boston, Mass.....	1912
LAMB, C. C., Museum Vert. Zool., Univ. Calif., Berkeley, Calif.	1926
LANCASHIRE, MRS. JAMES HENRY, 11 East 69th St., New York, N. Y.	1909
LANCELEY, W. H., 23 Elmdale Ave., Ottawa, Ont., Can.....	1926
LANDI, FLORINDO, 2261 First Ave., New York, N. Y.....	1925
LANG, HARRY M., 933 Liberty Ave., Pittsburgh, Pa.....	1924
LANG, HERBERT, Amer. Mus. Nat. Hist., New York, N. Y.....	1907
LANGDON, GEORGE M., 518 E. 4th St., Erie, Pa.....	1925

LANGDON, ROY M., 329 Elizabeth St., Fort Collins, Colo.....	1918
LANGELIER, GUS. A., Cap Rouge, Que., Canada.....	1923
LANGSTROTH, JAMES H., "Bin D," Silver City, N. M.....	1924
LANING, WALTER, 783 Graceland Ave., Des Plaines, Ill.....	1925
LANO, ALBERT, 120 N. Block St., Fayetteville, Ark..... (1889)	1919
LARRABEE, PROF. AUSTIN P., Yankton College, Yankton, S. Dak....	1918
LASTRETO, C. B., 260 California St., San Francisco, Calif.....	1919
LATHAM, ROY, Orient, L. I., N. Y.....	1916
LAUBENFELS, M. W. DE., 325 S. Greenwood Ave., Pasadena, Calif....	1925
LAUFFER, MISS SOPHIE L., 86 Greene Ave., Brooklyn, N. Y.....	1925
LAUGHLIN, MRS. A. J., 302 Professional Bldg., Richmond, Va.....	1925
LAUGHLIN, J. A., 318 E. Gordon St., Marshall, Mo.....	1919
LAURENT, PHILIP, 31 E. Mt. Airy Ave., Philadelphia, Pa.....	1902
LAWRENCE, A. G., City Health Dept., Winnipeg, Man., Can.....	1920
LAWRENCE, R. B., 411 Westmoreland Ave., Houston, Texas (1883)	1923
LAWSON, RALPH, 88 Washington Sq. East, Salem, Mass.....	1917
LAZEAR, J. M., 922 S. Negley Ave., Pittsburgh, Pa.....	1922
LEACH, FRANK A., Diablo, Calif.....	1921
LEARNED, MISS AGNES M., Wilkins St., Hudson, Mass.....	1920
LEE, HENRY E., Box 495, Rapid City, S. D.....	1925
LEFFINGWELL, DANA J., Aurora-on-Cayuga, N. Y.....	1919
LEISTER, CLAUDE W., Forest Home, Ithaca, N. Y.....	1916
LERMOND, N. W., Thomaston, Maine.....	1921
LETL, FRANK H., Sublette, Ill.....	1925
*LEVEY, MRS. WILLIAM M., 58 Davis Ave., Brookline, Mass.....	1915
LEVIN, BENJAMIN S., 2104 Chelsea Terrace, Walbrook, Baltimore, Md.	1922
LEWIS, B. PALMER, 1819 Broadway, New York, N. Y.....	1925
LEWIS, HARRISON F., Can. Nat. Parks, Ottawa, Ont., Can.....	1912
LEWIS, MRS. HERMAN E., 180 Grove St., Haverhill, Mass.....	1912
LEWIS, JOHN B., Box 167, Lawrenceville, Va.....	1924
LEWIS, M. G., County Agent, Lexington, Va.....	1924
LEWY, DR. ALFRED, 2051 E. 72d Place, Chicago, Ill.....	1922
L'HOMMEDIEU, J. F., Gen. Sec'y, Y. M. C. A., Thomasville, Ga.....	1924
LIBBEY, ROBERT M., 520 New York Ave., N. W., Washington, D. C.	1920
LIGON, J. STOKLEY, Box 447, Fort Stockton, Texas.....	1912
LINGS, GEO. H., The Grange, Cheadle, Cheshire, England.....	1913
LINSDALE, JEAN M., Mus. Vert. Zool., Berkeley, Calif.....	1922
LIPPINCOTT, JOSEPH W., 227 South 6th St., Philadelphia, Pa.....	1926
LITTLE, MRS. EFFIE G., R. F. D. 1, Lowell, Ind.....	1922
LITTLE, LUTHER, 1400 Wayne Ave., S. Pasadena, Calif.....	1913
LLOYD, MRS. WILMOT, 406 Queen St., Ottawa, Ont., Can.....	1925
LOBDELL, PROF. R. N., Exp. Sta., A. & M. College, Miss.....	1922
LOCKE, DR. EDWIN A., 311 Beacon St., Boston, Mass.....	1920
LOCKWOOD, DEAN P., 6 College Circle, Haverford, Pa.....	1921
LODGE, FRED S., 423 S. Stone Ave., La Grange, Ill.....	1922
LOESCH FRANK J., 1540 Otis Bldg., 10 S. LaSalle St., Chicago, Ill....	1925

LOMAX, DR. CLAUDE, 421 Ross Ave., Evansville, Ind.....	1921
LONG, HARRY V., 260 Clarendon St., Boston, Mass.....	1920
LONGSTREET, ROBERT J., 610 Braddock Ave., Daytona Beach, Fla.....	1923
LOOMIS, LEE J., 110 E. Franklin St., Union, N. Y.....	1925
LORD, FREDERICK P., 39 College St., Hanover, N. Y.....	1922
LORING, J. ALDEN, Owego, Tioga Co., N. Y.....	1917
LOTHROP, DR. OLIVER A., 101 Beacon St., Boston, Mass.....	1920
LOVERIDGE, A., Mus. Comp. Zool., Cambridge, Mass.....	1924
LOW, DANIEL STORY, 1060 Beacon St., Brookline, Mass.....	1922
LOW, ETHELBERT I., 256 Broadway, New York, N. Y.....	1907
LOW, W. J., 16 Highland Ave., Montreal, Que., Can.....	1923
LOWE, JOHN N., Specular St., Marquette, Mich.....	1925
LOWNES, ALBERT E., P. O. Box 1531, Providence, R. I.....	1924
LUKE, MISS EMILY G., 374 Metcalfe Ave., Westmount, Que., Can.....	1926
LUM, EDWARD H., Chatham, N. J.....	1904
LUNN, MISS LULU M., 724 Villa St., Racine, Wis.....	1920
LUNN, MISS MARGARET A., Y. W. C. A., Dayton, Ohio.....	1919
LUTTRINGER, LEO A., JR., 1724 Herr St., Harrisburg, Pa.....	1925
LYNCH, JOSEPH, 400 Washington St., Perth Amboy, N. J.....	1920
LYON, DR. MARCUS W., JR., 214 La Porte Ave., South Bend, Ind.....	1922
LYTLE, MRS. HARRY M., Library, Pa.....	1924
MACCOY, C. V., 1 Lenox Hall, 1213 Beacon St., Brookline, Mass.....	1920
MACGOWAN, W. LEROY, 2905 Park St., Jacksonville, Fla.....	1924
MACKAYE, JAMES, 6 College St., Hanover, N. H.....	1921
MACLOGHLIN, MRS. F. E., 43 Inglewood Drive, Hamilton, Ont., Can.....	(1923)1926
MACMILLAN, WM. TORBERT, 23 Pilgrim Road, Boston, Mass.....	1924
MACREYNOLDS, GEORGE, 76 E. State St., Doylestown, Pa.....	1917
MACLAY, MARK W., JR., 44 Wall St., New York, N. Y.....	1905
MADDOCK, MISS EMELINE, Stoneleigh Court, Philadelphia, Pa.....	1897
MADDOX, GEORGE A., 1837 Wyoming Ave., N. W., Washington, D. C.....	1926
MADISON, HAROLD L., 2289 Grand View Ave., Cleveland Heights, Ohio.....	1912
MAGEE, M. J., 603 South St., Sault Ste. Marie, Mich.....	1919
MAHER, J. E., 323 Pacific Ave., Jersey City, N. J.....	1902
MAIN, JOHN S., 2210 Van Hise Ave., Madison, Wis.....	1926
MALLEIS, HARRY, Halstead, Kans.....	1924
MANN, DR. WM. M., Nat. Zool. Park, Washington, D. C.....	1925
MARBLE, RICHARD M., Woodstock, Vt.....	1907
MARBURGER, CLIFFORD, Denver, Pa.....	1923
MARCOTTE, REV. LEON, St. Charles Seminary, Sherbrooke, Que., Can.....	1921
MARDEN, AARON, Eagle Id., South Harpswell, Maine.....	1924
MARKS, EDWARD SIDNEY, 655 Kearney Ave., Arlington, N. J.....	1915
MARSH, MISS E. L., Peasemarsch Farm, Clarksburg, Ont., Can.....	1926
MARSH, R. K., 1660 Holly St., Denver, Colo.....	1922
MARSHALL, ALFRED, Montrose, Baldwin Co., Ala.....	1916
*MARSHALL, MRS. ELLA M. O., New Salem, Mass.....	1912

MARTIN, FRED I., Rt. 1, Box 58, Manchester, N. H.	1921
MATHEWS, F. SCHUYLER, 17 Frost St., Cambridge, Mass.	1917
MATHEWS, FRANK P., 49 West 52d St., New York, N. Y.	1923
MATHIESON, OLAF, 285 Saint John's Place, Brooklyn, N. Y.	1922
MATLACK, BENNETT K., Bridgeton, N. J.	1924
MAY, FRANKLIN H., 730 Livingston Ave., Syracuse, N. Y.	1920
MAY, DR. JOHN B., South Main St., Cohasset, Mass.	(1916) 1922
MAYFIELD, DR. GEORGE R., Kissam Hall, Nashville, Tenn.	1917
MAYNARD, CHAS. J., 457 Crafts St., W. Newton, Mass.	1921
MAYNARD, DR. HERBERT E., 464 Commonwealth Ave., Boston, Mass.	1921
MCCABE, T. T., Barkerville, B. C., Can.	1920
MCCALL, W. W., Haverford, Pa.	1921
MCCANN, HORACE D., Valley Road, Paoli, Pa.	1923
MCCCLINTOCK, NORMAN, 504 Amberson Ave., Pittsburgh, Pa.	1900
MCCOOK, PHILIP J., 413 E. 57th St., New York, N. Y.	1895
MCCRACKEN, MRS. J. W., 1524 Myrtle St., Scranton, Pa.	1926
MCCREA, WM. S., 721 Rush St., Chicago, Ill.	1922
MCCRIMMON, A. R., Montrose, Colo.	1924
MCDANIEL, GEO. H., 234 W. Pratt St., Eureka, Calif.	1923
MCGAHEY, MISS PEARL H., Canadian National Parks, Ottawa, Can.	1926
MCGEE, W. E., Route 4, Nampa, Idaho.	1926
MCILHENNY, EDWARD AVERY, Avery Island, La.	1894
MCINTOSH, FRANKLIN G., 1520 Liberty St., Franklin, Pa.	1925
McKENNY, MISS M., 22nd & Water Sts., Olympia, Wash.	1926
McKIM, LOUIS T., Melville, Sask., Can.	1924
McKINNEY, W. A., 31 North Fitzhugh St., Rochester, N. Y.	1925
McLAIN, ROBERT B., P. O. Box 132, Hollywood Sta., Los Angeles, Calif.	1893
McLELLAN, MISS MARY E., Apt. 6, 945 Pine St., San Francisco, Calif.	1920
McLENNAN, JAMES P., Route 4, Marigold Lodge, Holland, Mich.	1924
McMILLAN, MRS. GILBERT N., 4640 Delafield Ave., Riverdale on Hudson, New York, N. Y.	1902
McMULLEN, T. E., 933 N. 5th St., Camden, N. J.	1920
McNEIL, DR. CHAS. A., 1123 W. 7th St., Sedalia, Mo.	1919
McNEIL, GEORGE M., 195 Lincoln St., Winthrop, Mass.	1920
MEAD, MRS. E. M., 51 E. 78th St., New York, N. Y.	1904
MEAD, LYLE G., 807 N. Pine Ave., Chicago, Ill.	1921
MEDSGER, OLIVER P., 9 Columbia Ave., Arlington, N. J.	1919
MEGREW, ALDEN F., 265 Clarendon St., Boston, Mass.	1923
MELCHER, MRS. C. W., 49 N. Washington St., Hinsdale, Ill.	1922
MELNY, MISS GRACE C., 321 Memorial St., Great Neck, L. I., N. Y.	1925
MELLEN, DR. ELEANOR, 291 Lake Ave., Newton Highlands, Mass.	1920
MELLOTT, DR. S. W., Patent Office, Washington, D. C.	1925
MENGEL, G. HENRY, 730 Madison Ave., Reading, Pa.	1913
MENNINGER, DR. WM. C., Mulvane Bldg., Topeka, Kans.	1919
MERCUR, J. WATTS, JR., Wallingford, Pa.	1920
MERRIAM, DR. HENRY F., 165 Orange Heights Ave., W. Orange, N. J.	1905

MERRILL, MRS. C. H. S., 95 Hinckley Road, Milton, Mass.....	1924
MERRILL, D. E., 5th and Sycamore Sts., Rogers, Ark.....	1913
MERRIMAN, MISS IDA, 96 W. 2nd St., Hamilton, Ont., Can.....	1926
MERRIMAN, R. OWEN, 96 W. 2nd St., Hamilton, Ont., Can.....	1920
*MERSHON, W. B., Saginaw, Mich.....	1905
MESSER, DON V., Huntington, Mass.....	1924
METCALF, JESSE, 130 East 67th St., New York, N. Y.....	1926
METCALF, DR. Z. P., State College Station, Raleigh, N. C.....	1913
MEYER, MAJOR G. RALPH, C. A. C., c/o Adjutant General, U. S. A., Washington, D. C.....	1913
*MEYER, MISS HELOISE, Lenox, Mass.....	1913
MICHENER, HAROLD, 418 Elm Ave., Pasadena, Calif.....	1926
MIDDLETON, R. J. Jeffersonville, Pa.....	1920
MILLER, MISS BERTHA S., Capstone Farm, R. 3, Kingston, N. Y.....	1915
MILLER, MRS. H. C., 1110 Main St., Racine, Wis.....	1922
MILLER, ISAAC P., 111 South 4th St., Philadelphia, Pa.....	1925
MILLER, MISS JULIA, Rt. 3, Hornell, Steuben Co., N. Y.....	1921
MILLER, MRS. LENA S., 630 Glynn Court, Detroit, Mich.....	1924
MILLER, MISS MARY MANN, 5928 Hayes Ave., Los Angeles, Calif.....	1921
MILLER, MILO H., 420 Jucunda St., Mt. Oliver, Pittsburgh, Pa.....	1924
MILLS, WIER R., Pierson, Iowa.....	1920
MILNE, GEORGE P., St. Paul's School, Concord, N. H.....	1925
MINER, LEO D., 1836 Vernon St., N. W., Washington, D. C.....	1913
MIRICK, HENRY D., 1809 19th St., N. W., Washington, D. C.....	1925
MITCHELL, MISS CATHARINE A., 144 Fairbank Road, Riverside, Ill.....	1911
MITCHELL, H. HEDLEY, Provincial Mus., Regina, Sask., Can.....	1918
MITCHELL, W. G., c/o Price Bros. Ltd., Quebec, Can.....	1926
MITCHELL, DR. WALTON I., Paonia, Delta Co., Colo.....	1893
MITSCH, GRANT E., Brownsville, Ore.....	1926
MOFFATT, E. E., 146 Oak St., Winsted, Conn.....	1926
MOFFITT, JAMES, 1879 Broadway, San Francisco, Calif.....	1926
MOHR, CARL OTTO, 1208 Raymond Ave., St. Paul, Minn.....	1922
MONK, H. C., Avoca Apts., Nashville, Tenn.....	1921
MOODY, A. J., c/o Aetna Life Ins. Co., Hartford, Conn.....	1918
MOON, WILBUR D., 46 Maple St., East Lynn, Mass.....	1926
MOORE, MRS. NETTIE L. P., 941 Starkweather Ave., Plymouth, Mich.....	1925
**MORCOM, G. FREAN, 243 North Coronado St., Los Angeles, Calif.....	1886
MORE, R. L., 1905 Wilbarger St., Vernon, Texas.....	1921
MOREHEAD, H. R., 12 East 31st St., New York, N. Y.....	1926
MOREHOUSE, B. J., Branchville, Conn.....	1926
MOREY, MRS. LILLIAN D., 2801 Upton St., N. W., Washington, D. C.....	1924
MORGAN, BRENT M., 224 11th St., S. W., Washington, D. C.....	1919
*MORGAN, JOHN SAGE, 27 Circuit Road, Chestnut Hills, Mass.....	1927
MORRELL, ARCH HIRAM, 210 Maine Ave., Gardiner, Maine.....	1923
MORRIS, MISS GRACE A., Eagle Rock, Pa.....	1924
*MORRIS, DR. LEWIS R., 60 W. 58th St., New York, N. Y.....	1923

MORRIS, MISS LUCY N., 238 Claremont Ave., Montclair, N. J.	1920
MORRISON, ALVA, 35 Congress St., Boston, Mass.	1915
MORROW, MISS EDITH, 157 Hutchinson St., Montreal, Que., Can.	1926
MORSE, FRANK E., 162 Boylston St., Boston, Mass.	1921
MORSE, GEO. W., 318 East 9th St., Tulsa, Okla.	1922
MORSE, HARRY GILMAN, Huron, Ohio.	1912
MORSE, MISS MARGARETTE E., Viroque, Wis.	1919
MORTON, FRED C., Savannah Electric & Power Co., Savannah, Ga.	1926
MOSELEY, PROF. EDWIN LINCOLN, Bowling Green, Ohio.	1918
MOSES, MRS. EDMUND Quincey, 16 Fairview Ave., Tarrytown, N. Y.	1919
MOSHER, FRANKLIN H., 17 Highland Ave., Melrose Highlands, Mass.	1905
MOULTON, FRANCIS S., 23 Avon St., Cambridge, Mass.	1926
MOULTON, HERBERT F., 12 School St., Ware, Mass.	1920
MÜLLER, ADOLF, Norristown, Pa.	1925
MUELLER, WALTER J., 580 Beverly Road, Milwaukee, Wis.	1923
MULLER, CARL L., 31 East 65th St., New York, N. Y.	1925
MUNRO, MRS. WALTER S., 40 N. Main St., S. Norwalk, Conn.	1920
MURIE, O. J., 219 7th Ave., S., Moorhead, Minn.	1913
MURPHY, MRS. GRACE E. B., 45 Oriole Ave., Bronxville, N. Y.	1919
MURPHY, MISS LOUISE, 9 Summerhill Ave., Montreal, Que., Can.	1926
MURRAY, A. LINN, 712 N. Main St., Auburn, Ind.	1924
MURRAY, EDGAR A., 2703 Guoin St., Detroit, Mich.	1919
MURRAY, FRANK F., Box 606, Titusville, Pa.	1922
MURRAY, DR. GILBERT D., 528 Madison Ave., Scranton, Pa.	1925
MUSSELMAN, T. E., 124 S. 24th St., Quincy, Ill.	1922
MYERS, EVERETT C., Biol. Lab. DePauw Univ., Greencastle, Ind.	1924
MYERS, MRS. HARRIET W., 311 N. Ave. 66, Los Angeles, Calif.	1906
MYERS, MISS LUCY F., 64 Market St., Poughkeepsie, N. Y.	1898
MYERS, ORD, 216th St. and 9th Ave., New York, N. Y.	1922
NAUMBURG, WALTER W., 14 Wall St., New York, N. Y.	1923
*NEELY, JAMES C., 135 High St., Brookline, Mass.	1919
NEFF, JOHNSON A., Neff Orchards, Marionville, Mo.	1919
NEFF, W. G., Box 326, Brantford, Ont., Can.	1926
NEILSON, JAMES A., Wheatland, Wyo.	1923
NETTING, GRAHAM, Carnegie Museum, Pittsburgh, Pa.	1925
NEWBEGIN, EDWARD KING, 62 Sparks St., Cambridge, Mass.	1924
NEWBERRY, W. F., 233 Broadway, New York, N. Y.	1920
NEWCUMB, C. A., JR., Rt. 3, Pontiac, Mich.	1920
NEWELL, MRS. H. S., Board of Trade Bldg., Duluth, Minn.	1926
NEWTON, RICHARD F., 302 Franklin St., Holyoke, Mass.	1925
NICE, MRS. MARGARET M., Norman, Okla.	1920
NICHOLS, L. NELSON, N. Y. Public Library, New York, N. Y.	1917
NICHOLS, RODMAN A., 27 Broad St., Salem, Mass.	1919
NICHOLSON, DONALD J., P. O. Box 631, Orlando, Fla.	1925
NININGER, PROF. H. H., 759 E. Euclid St., McPherson, Kans.	1920
NOKES, DR. I. D., 1120 Rives Strong Bldg., Los Angeles, Calif.	1915

NOLTE, REV. FELIX, St. Benedict's College, Atchison, Kans.	1903
NORRIS, EDWARD, 301 W. Springfield Ave., Philadelphia, Pa.	1916
NORRIS, J. PARKER, JR., 2122 Pine St., Philadelphia, Pa.	1904
NORRIS, ROY, Route B, Richmond, Ind.	1925
NORTHROP, ELIZABETH A., 103 Willis Ave., Youngstown, Ohio.	1924
NUGENT, JAMES R., 763 Broad St., Newark, N. J.	1920
O'BRIEN, JOHN E., JR., DeSoto Hotel, Savannah, Ga.	1926
*O'CONOR, JOHN CHRISTOPHER, 24 E. 33rd St., New York, N. Y.	1921
ODELL, THEODORE T., 328 Pultney St., Geneva, N. Y.	1926
OEHSER, PAUL H., Biological Survey, Washington, D. C.	1925
OGDEN, DR. HENRY VINING, 141 Wisconsin St., Milwaukee, Wis.	1897
O'LEARY, A. L., 1033 Lawrence St., N. E., Washington, D. C.	1926
ORMSBY, MRS. OLIVER S., 5756 Blackstone Ave., Chicago, Ill.	1925
ORTEGA, JAMES L., Rt. 1, Box 8, Yountville, Calif.	1923
OSBORN, PROF. HENRY F., Am. Mus. Nat. Hist., New York, N. Y.	1919
OSBORN, MISS MARY E., 2060 Northwestern Ave., Indianapolis, Ind.	1922
OSBORNE, ARTHUR A., 183 Lowell St., Peabody, Mass.	1912
OSLER, H. S., 1 Rosedale Road, Toronto, Ont., Can.	1920
OTIS, MISS OLIVE, 193 Madison Ave., New York, N. Y.	1926
OVER, WILLIAM H., 125 Harvard St. N., Vermillion, S. Dak.	1921
*OWEN, MISS JULIETTE AMELIA, 306 N. 9th St., St. Joseph, Mo.	1897
PACKARD, WINTHROP, 1442 Washington St., Canton, Mass.	1917
PAGAN, FRANK, Central Ave., Wellsboro, Pa.	1923
**PAINE, AUGUSTUS G., JR., 31 E. 69th St., New York, N. Y.	1886
PAINE, JOHN B., Weston, Mass.	1922
PAINTER, KENYON V., 3240 Fairmount Blvd., Cleveland, Ohio.	1920
*PALEN, F. P., 233 Broadway, New York, N. Y.	1926
*PALMER, MISS E. D., 1741 S. Harvard Blvd., Los Angeles, Calif.	1918
PALMER, R. H., Instituto Geologico, City of Mexico, Mexico.	1916
PALMER, DR. SAMUEL C., Swarthmore College, Swarthmore, Pa.	1899
PALMER, MRS. T. S., 1939 Biltmore St., N. W., Washington, D. C.	1918
PANGBURN, CLIFFORD H., Chappaqua, Westchester Co., N. Y.	1907
PARDEE, DR. LUCIUS C., 30 N. Michigan Ave., Chicago, Ill.	1926
*PARKER, EDWARD LUDLOW, Nashawtuc Road, Concord, Mass.	1916
PARKER, HERBERT, South Lancaster, Mass.	1920
PARMENTER, HENRY E., First National Bank, Santa Barbara, Calif.	1924
PARSONS, LEAVITT C., 70 State St., Boston, Mass.	1924
PATCH, DR. EDITH M., College Road, Orono, Maine.	1921
PATTEN, DR. STEPHEN K., 141 Milk St., Boston, Mass.	1920
PAUL, LUCIUS H., 424 Carter St., Rochester, N. Y.	1908
PEABODY, REV. P. B., 2011 Park Ave., Topeka, Kans.	1903
PEARSE, SPENCER, Ravenscrag, Sask., Can.	1926
PEARSE, THEOD, P. O. Box 158, Courtenay, Vancouver Id., B. C., Can.	1926
PEASE, MISS FLORENCE M., Box 265, Conway, Mass.	1922
PELLEW, MISS MARION J., Box 455, Aiken, S. C.	1919
PEMBER, KARL A., Woodstock, Vt.	1921

PEMBERTON, JOHN ROY, 525 N. Palm Drive, Beverly Hills, Calif.	1918
PEPPER, DR. WM., Melrose Park, Philadelphia, Pa.	1911
PERINE, KEBLE B., c/o Dr. Kline, Dept. Public Health, City Hall, Birmingham, Ala.	1917
PERKINS, DR. ANNE E., Gowanda State Hospital, Helmuth, N. Y.	1917
PERKINS, DR. EDW. H., Box 52, Waterville, Maine.	1920
PERKINS, DR. GEO. H., Univ., of Vt., Burlington, Vt.	1912
PERKINS, SAMUEL E., 3rd, 701 City Trust Bldg., Indianapolis, Ind.	1923
PERRY, GEO. L., 68 Thurston St., Winter Hill, Somerville, Mass.	1923
PERRY, J. ELMER, 627 West 3rd St., Erie, Pa.	1924
PETER, JULIUS C., Detroit Trust Co., Detroit, Mich.	1921
PETERS, ALBERT S., Donnybrook, N. Dak.	1908
PETERS, HAROLD S., Box 206, Onley, Va.	1924
PETERS, JOS. G., JR., Box 22, North Truro, Mass.	1921
PETERS, WM. Y., 143 Bay State Road, Boston, Mass.	1925
PETERSON, ALFRED, Box 211, Pipestone, Minn.	1920
PETERSON, ROGER T., 16 Bowen St., Jamestown, N. Y.	1925
PETRIE, DR. RAYMOND C., 5 West Main St., Johnstown, N. Y.	1925
PETTY, ORVILLE A., Chapel St. & Sherman Ave., New Haven, Conn.	1919
PEYTON, LAWRENCE G., Fillmore, Ventura Co., Calif.	1924
PHELPS, FRANK M., 128 Cedar St., Elyria, Ohio.	1912
PHELPS, MRS. J. W., Box 158, Northfield, Mass.	1899
*PHILIPP, PHILIP B., 220 Broadway, New York, N. Y.	1907
PHILLIPS, ALEXANDER H., 54 Hodge Road, Princeton, N. J.	1891
PHILLIPS, ALLAN R., P. O. Box 562, Scarsdale, N. Y.	1925
PHILLIPS, CHAS. LINCOLN, 5 West Weir St., Taunton, Mass.	1912
*PHILLIPS, JOHN M., 2227 Jane St., Pittsburgh, Pa.	1920
PICKENS, ANDREW L., 202 Grove St., Greenville, S. C.	1925
PICKWELL, GAYLE B., Northwestern Univ., Evanston, Ill.	1924
PIERCE, WRIGHT McEWEN, Box 343, Claremont, Calif.	1918
*PIKE, EUGENE ROCKWELL, 191 East Walton Place, Chicago, Ill.	1926
PILSBURY, FRANK O., 1088 Main St., Walpole, Mass.	1917
*PINCHOT, HON. GIFFORD, 1615 Rhode Island Ave., Wash., D. C.	1910
PINDAR, DR. L. OTLEY, Versailles, Kentucky.	1922
PIRNIE, MILES D., McGraw Hall, Ithaca, N. Y.	1919
PLATH, KARL, 2847 Giddings St., Chicago, Ill.	1925
PLATT, HON. EDMUND, 2339 Ashmead Pl., N. W., Washington, D. C.	1917
POE, MISS MARGARETTA, Earl Court, St. Paul & Preston Sts., Baltimore, Md.	1899
POMEROY, F. E., Dept. Biology, Bates College, Lewiston, Maine.	1920
POOLE, EARL L., Public Museum, Reading, Pa.	1916
PORTER, EDGAR F., R. F. D. 2, Athol, Mass.	1922
PORTER, ELIOT F., 1085 Sheridan Road, Hubbard Woods, Ill.	1924
PORTER, JAMES V., Box 394, Glenwood, Minn.	1926
PORTER, LOUIS H., Noroton Hill, Stamford, Conn.	1893
PORTER, WILLARD B., 5 Lee St., Salem, Mass.	1922

POST, WILLIAM S., 101 Park Ave., New York, N. Y.....	1911
POTTER, MISS JESSICA A., 1118 Santee St., Los Angeles, Calif....	1924
POTTER, JULIAN K., 437 Park Ave., Collingswood, N. J.....	1921
POTTER, LAWRENCE B., Gower Ranch, East End, Sask., Can....	1919
POTTER, L. HENRY, R. F. D. 2, West Rutland, Vt.....	1922
POTTS, F. A., Fortuna, Porto Rico.....	1922
POTTS, THOMAS C., East Erie Ave. & D St., Philadelphia, Pa.....	1923
POUGH, RICHARD H., 4 Lenox Place, St. Louis, Mo.....	1922
PRAEGER, WILLIAM E., Kalamazoo College, Kalamazoo, Mich....	1892
PRATT, GEO. D., Pratt Inst., 215 Ryerson St., Brooklyn, N. Y.....	1917
PRENTISS, REV. WM. C., Plainfield, Conn.....	1921
PRESCOTT, MRS. S. C., 249 Tappan St., Brookline, Mass.....	1922
PRICE, JOHN HENRY, Crown W Ranch, Knowlton, Mont.....	1906
PRICE, DR. LIGON, Dunmore, W. Va.....	1913
PRIEST, GEO. H., 33 North Ash St., Brockton, Mass.....	1922
PRILL, DR. A. G., Scio, Oregon.....	1921
PROCTOR, GEORGE N., 35 Congress St., Boston, Mass.....	1919
PURDIE, MISS EVELYN, 383 Harvard St., Cambridge, Mass.....	1921
PURDY, WILLIAM B., Milford, Oakland Co., Mich.....	1921
QUARLES, EMMET AUGUSTUS, 139 E. 7th St., Plainfield, N. J.....	1918
QUATTLEBAUM, REV. W. D., 191 Prospect St., East Orange, N. J....	1924
QUILLIN, ROY W., 1025 Summit Ave., San Antonio, Texas.....	1920
QUINCY, JOSIAH H., 37 Stratford St., Boston 32, Mass.....	1922
RACEY, KENNETH, 3262 First Ave., W., Vancouver, B. C., Can....	1921
RAINWATER, MISS HARRIETT C., 393 Williams St., Atlanta, Ga....	1923
RAND, FRANK L., 1106 Arcade Bldg., St. Louis, Mo.....	1922
RANDALL, T. E., Box 239, Castor, Alberta, Can.....	1925
RANKIN, DR. GEORGE SAMUEL, Longford, St. George's, Bermuda....	1922
RAPP, F. W., Vicksburg, Mich.....	1922
REA, DR. PAUL M., 2717 Euclid Ave., Cleveland, Ohio.....	1912
REAGH, DR. ARTHUR LINCOLN, 39 Maple St., West Roxbury, Mass..	1896
REDICK, LEONARD L., Newington Junction, Conn.....	1924
REED, MRS. C. I., 2635 Reagan St., Dallas, Texas.....	1920
REED, MRS. CHAS. K., 11 State St., Worcester, Mass.....	1925
REED, MISS CLARA EVERETT, Brookfield, Mass.....	1919
REED, MONTAGUE, Apt. 8, 5980 Park Ave., Montreal, Que., Can....	1921
REESE, MRS. ROBERT M., 517 Cameron St., Alexandria, Va....	1920
REGAR, G. BERTRAM, 434 Vernon Road, Noble Vista, Jenkintown, Pa.	1923
REGAR, H. SEVERN, 1400 DeKalb St., Norristown, Pa.....	1916
REHN, JAMES A. G., Acad. Nat. Sciences, Logan Sq., Philadelphia, Pa.	1901
REID, RUSSELL, 911 6th St., Bismarck, N. Dak.....	1919
REIS, REV. JACOB A., JR., Kribi, Efulan, Cameroun, French West Africa.	1921
RHOADS, CHARLES J., 330 Chestnut St., Philadelphia, Pa.....	1895
RICE, JAMES HENRY, JR., Brick House Planatation, Wiggins, S. C.	1910
RICE, WARD J., 5250 N. Pennsylvania St., Indianapolis, Ind.....	1913
RICH, MISS NELLIE V., 280 Whalley Ave., New Haven, Conn.....	1923

RICH, WALDO L., Box 221, Saratoga Springs, N. Y.	1921
RICHARDS, MISS HARRIET E., 36 Longwood Ave., Brookline, Mass.	1900
RICHARDS, MISS RUTH, Clifton Sta., Fairfax Co., Va.	1921
RICHARDSON, FREDERICK L. W., JR., Charles River, Mass.	1921
RICHARDSON, JENNESS, 305 Walnut St., S. E., Minneapolis, Minn.	1920
RICHARDSON, RUSSELL JR., Newton, Bucks Co., Pa.	1924
RICHARDSON, W. D., 4215 Prairie Ave., Chicago, Ill.	1917
*RICHARDSON, MRS. W. D., 4215 Prairie Ave., Chicago, Ill.	1925
RICHARDSON, DR. WYMAN, 229 Dudley Road, Newton Centre, Mass.	1920
RIDGWAY, JOHN L., 501 Fairmount St., Glendale, Calif.	1890
**RIKER, CLARENCE B., 432 Scotland Road, South Orange, N. J.	1885
RISHEL, JOHN B., 749 South Lincoln St., Denver, Colo.	1922
ROBB, WALLACE H., 80 Highland Ave., Belleville, Ont., Can.	1921
ROBBINS, CHARLES A., Onset, Mass.	1914
ROBBINS, REGINALD C., Northeast Harbor, Maine.	1921
ROBBINS, MRS. REGINALD C., Northeast Harbor, Maine.	1921
ROBERTS, H. RADCLIFFE, Villa Nova, Pa.	1924
ROBERTS, WILLIAM ELY, 207 McKinley Ave., Lansdowne, Pa.	1902
ROBERTS, WM. F., 1514 H St., N. W., Washington, D. C.	1924
ROBERTSON, HOWARD, 157 S. Wilton Drive, Los Angeles, Calif.	1911
ROBERTSON, JOHN MCB., Box 121, Buena Park, Orange Co., Calif.	1920
ROBIE, WM. P. F., Gorham, Maine.	1926
ROBINSON, ANTHONY W., P. O. Box 426, Haverford, Pa.	1903
ROBINSON, PROF. J. M., Box 264, Auburn, Ala.	1922
ROBINSON, MRS. L. K., 1130 S. Franklin St., Denver, Colo.	1919
ROBINSON, MISS MARY L., Teachers College, Kansas City, Mo.	1919
ROBSON, ERNEST R., Toulon, Ill.	1923
ROGERS, MRS. A. L., 1413 Myrtle St., Scranton, Pa.	1926
ROGERS, MISS MABEL F., 11 Fourth Ave., Ottawa, Ont., Canada.	1921
ROGERS, REV. WALLACE, 173 Hurt St., Atlanta, Ga.	1921
ROLLINS, HARRY L., 646 Washington St., Wellesley, Mass.	1924
ROOSEVELT, FRANKLIN DELANO, Hyde Park, N. Y.	1896
ROSE, GEORGE C., 222 Front St., Mineola, N. Y.	1920
ROSS, GEO. H., 23 West St., Rutland, Vt.	1904
ROSS, LAURENCE S., 510 E. Second St., Moorestown, N. J.	1925
ROSS, DR. LUCRETIVS H., 507 Main St., Bennington, Vt.	1912
ROSS, REUBEN J., Port Washington, L. I., N. Y.	1922
ROSS, ROLAND CASE, 388 Dearborn St., Pasadena, Calif.	1925
ROTHROCK, BOYD P., 276 Briggs St., Harrisburg, Pa.	1925
ROTHNOUR, A. B., 707 Hazel Ave., Ellwood City, Pa.	1921
ROWAN, PROF. WILLIAM, Univ. of Alberta, Edmonton, Alta., Can.	1920
RUGG, HAROLD GODDARD, Dartmouth College, Hanover, N. H.	1919
*RUMSEY, MRS. MARY HARRIMAN, Wheatley Hills, Westbury, L. I., N. Y.	1925
RUSSELL, JOHN W., 84 Joslin St., Providence, R. I.	1922
RUST, HENRY J., Coeur d'Alene, Idaho.	1918

SAGE, DEWITT L., 580 Park Ave., New York, N. Y.....	1925
**SAGE, HENRY M., Menands Road, Albany, N. Y.....	1885
SAGE, MRS. MARY SEARL, 1974 Broadway, New York, N. Y.....	1919
SAMPSON, W. B., 1005 N. San Joaquin St., Stockton, Calif.....	1922
SANBORN, COLIN C., Field Museum, Chicago, Ill.....	1911
*SANFORD, DR. LEONARD C., 216 Crown St., New Haven, Conn.....	1919
SANTENS, REMI H., Carnegie Museum, Pittsburgh, Pa.....	1918
SASS, HERBERT R., 23 Legare St., Charleston, S. C.....	1923
SATTERTHWAIT, MRS. A. F., 118 Waverly Place, Webster Groves, Mo.....	1920
SAUNDERS FREDERICK A., 10 Chauncy St., Cambridge 38, Mass.....	1923
SAUNDERS, GEO., 305 East Tenth St., Oklahoma City, Okla.....	1925
SAVAGE, HENRY L., 131 Pyne Hall, Princeton, N. J.....	1926
SAVAGE, JAMES, 1048 Ellicott Sq., Buffalo, N. Y.....	1895
SAVAGE, S. O., Parkdale, Ashley Co., Ark.....	1922
SAVARY, WALTER B., Wareham, Mass.....	1922
SAVIN, WILLIAM M., 52 Broadway, New York, N. Y.....	1921
SAWYER, EDMUND JOSEPH, Yellowstone Park, Wyo.....	1922
SCHAEFER, OSCAR FREDERICK, 724 Woodbine St., Rochester, N. Y.....	1916
SCHAFER, J. J., Port Byron, Ill.....	1918
SCHANTZ, AUSTIN T., 536 Lake Shore Drive, Chicago, Ill.....	1923
SCHANTZ, ORPHEUS M., 3219 Maple Ave., Berwyn, Ill.....	1919
SCHEAR, PROF. E. W. E., 107 W. Park St., Westerville, Ohio.....	1922
SCHELL, JOHN W., 129 W. Sharpneck St., Mt. Airy, Philadelphia, Pa.....	1923
SCHNEIDER, MRS. G. H., 4618 Kingswell Ave., Los Angeles, Calif.....	1921
SCHOEDINGER, GEORGE R., JR., 78 Auburn Ave., Columbus, Ohio.....	1926
SCHONNEGEL, JULIAN ELIOT, 92 Morningside Ave. E., New York, N. Y.....	1918
SCHORGER, A. W., 2021 Kendall Ave., Madison, Wis.....	1913
SCHRENCK, DR. HERMANN VON, Tower Grove and Flad Aves., St. Louis, Mo.....	1919
SCHROEDER, MRS. ADELE PARROTT, Rt. 2, White River, S. Dak.....	1920
SCHWARZ, HERBERT F., Am. Mus. Nat. Hist., New York, N. Y.....	1925
SCOTT, CHAS. H., JR., 715 Walnut St., Philadelphia, Pa.....	1926
SCOVILLE, GURDON T., Phillips Exeter Academy, Exeter, N. H.....	1925
SCOVILLE, SAMUEL, JR., 1307 Penn Bldg., Philadelphia, Pa.....	1916
SEARS, MISS ANNIE L., 85 Mt. Vernon St., Boston, Mass.....	1924
SEARS, MRS. GEO. G., 426 Beacon St., Boston, Mass.....	1922
SEELEY, GEORGE H., Box 106, Stockbridge, Mass.....	1920
SEFTON, J. W., JR., Maryland Bldg., San Diego, Calif.....	1922
*SEMPLE, JOHN B., Sewickley, Pa.....	1924
*SERPELL, GOLDSBOROUGH, Seaboard Nat. Bank, Norfolk, Va.....	1926
SERRILL, WILLIAM J., Haverford, Pa.....	1916
SHAVER, PROF. JESSE M., Peabody College, Nashville, Tenn.....	1924
SHAW, HENRY S., 40 Fenwick Road, Waban, Mass.....	1916
SHAW, T. H., Mus. Vert. Zool., Univ. California, Berkeley, Calif.....	1922
SHAW, PROF. WILLIAM T., 66 College Sta., Pullman, Wash.....	1908
SHEA, PROF. DANIEL W., Catholic Univ. of Amer., Washington, D. C.....	1917

SHEARER, DR. AMON R., Mont Belvieu, Chambers Co., Texas.....	1905
SHELDON, CHARLES, 1830 Phelps Place, N. W., Washington, D. C.....	1911
SHELDON, H. E., 21 Norwood Ave., Norwalk, Ohio.....	1926
SHELLEY, LEWIS O., Box 9, East Westmoreland, N. H.....	1925
SHERRILL, WM. E., Haskell, Tex.....	1922
SHERWOOD, ROBERT C., 38 Vassar St., Springfield, Mass.....	1921
SHIPMAN, C. M., 114 Ridge Road, Willoughby, Ohio.....	1925
SHOEMAKER, CLARENCE R., 3116 P St., Washington, D. C.....	1910
SHOEMAKER, HENRY W., Room 409, 71 Broadway, New York, N. Y.....	1912
SHOFFNER, CHAS. P., Glademore Court, Apt. C 302, 48th & Locust Sts., Philadelphia, Pa.....	1915
SHUMWAY, FRANK R., 404 West Ave., Rochester, N. Y.....	1920
SILLIMAN, O. P., c/o Mitchell-Silliman Co., Salinas, Calif.....	1915
SKEELE, HENRY B., 116 W. Gaston St., Savannah, Ga.....	1926
SKINNER, M. P., 44 Broadhead Ave., Jamestown, N. Y.....	1916
SLAWSON, DR. EDW. DOUGLASS, 708 N. Sheridan St., Bay City, Mich.....	1921
SLOANAKER, PROF. J. L., 907 W. Mansfield Ave., Spokane, Wash.....	1923
SMALL, LT. COL. WM. M., Headquarters U. S. Marine Corps, Washington, D. C.....	1924
SMITH, AUSTIN PAUL, Apt. 412, San Jose, Costa Rica.....	1911
SMITH, EARL R., P. O. Box 641, New Orleans, La.....	1924
SMITH, MISS ETHEL M., 57 Pleasant St., Amherst, Mass.....	1924
SMITH, MRS. FLORENCE, Box 145, Cincinnati, N. Y.....	1920
SMITH, PROF. FRANK, 802 Ohio St., Urbana, Ill.....	1909
SMITH, FRANK R., 6 East Maple St., Fayetteville, Ark.....	1926
SMITH, MRS. HERBERT W., Islip, L. I., N. Y.....	1925
SMITH, HORACE G., 2918 Lafayette St., Denver, Colo.....	1888
SMITH, HOWARD C., Rt. 1, Stafford Springs, Conn.....	1923
**SMITH, DR. HUGH M., 1209 M St., N. W., Washington, D. C.....	1886
SMITH, JESSE L., 141 S. 2nd St., Highland Park, Ill.....	1920
SMITH, LESTER W., Park Club House, Babson Park, Mass.....	1916
SMITH, NAPIER, Bank of Montreal, Verdun, Que., Can.....	1915
SMITH, O. WARREN, 112 W. Church St., Evansville, Wis.....	1924
SMITH, ROY H., 183 N. Prospect St., Kent, Ohio.....	1922
SMITH, MRS. WALLIS C., 525 N. Mich. Ave., Saginaw, W. S., Mich.....	1916
SMITH, WENDELL PHILLIPS, Wells River, Vt.....	1919
SMOOKER, GEORGE D., Mt. Hope, St. Joseph, Trinidad, B. W. I.....	1926
SMYTH, ELLISON A., JR., Rt. 2, Box 63, Salem, Va.....	1892
SMYTH, THOMAS, Dept. Zoology, Univ. South Carolina, Columbia, S. C.....	1921
SNOW, MISS GRACE M., 39 Forest St., Winchester, Mass.....	1922
SNYDER, MISS DOROTHY E., 133 Columbus St., Elyria, Ohio.....	1923
SNYDER, LESTER L., Royal Ont. Mus., Toronto, Ont., Can.....	1919
SNYDER, WILL EDWIN, 309 DeClark St., Beaver Dam, Wis.....	1895
SOPER, J. DEWEY, National Museum, Ottawa, Ont., Can.....	1923
SPAULDING, MISS NINA GERTRUDE, Jaffrey, N. H.....	1922

SPEAR, JAMES JR., Wallingford, Pa.....	1926
SPELMAN, HENRY M., 48 Brewster St., Cambridge, Mass.....	1911
SPERRY, CHARLES C., Biological Survey, Washington, D. C.....	1920
*SPINGARN, EDW. D. W., Amenia, N. Y.....	1924
SPRAGUE, HARRY L., 310 Main St., Springfield, Mass.....	1925
SPRAGUE, ISAAC, Wellesley Hills, Mass.....	1920
SPROT, G. D., R. M. D. Cobble Hill, Vancouver Island, B. C., Can...	1923
SPRUANCE, W. C., 2507 W. 17th St., Wilmington, Del.....	1923
SPRUNT, ALEXANDER, JR., 92 South Bay St., Charleston, S. C....	1923
STACY, EUGENE C., Tiffin, Ohio.....	1924
STANLEY, DR. A. CAMP, The Farragut, Washington, D. C.....	1925
STANWOOD, MISS CORDELIA JOHNSON, Ellsworth, Maine.....	1909
STEBBINS, FANNIE A., R. F. D. 2, 31 Ely Ave., W. Springfield, Mass...	1922
STEPHENSON, MRS. JESSE, Monte Vista, Colo.....	1918
STETSON, SERENO, 511 W. 113th St., New York, N. Y.....	1923
STEVENSON, JAMES O., 6013 Winthrop Ave., Chicago, Ill.....	1926
STEWART, J. B., Roselle, N. J.....	1921
STICKNEY, GARDNER P., 864 Summit Ave., Milwaukee, Wis.....	1923
STILES, EDGAR, C., 345 Main St., West Haven, Conn.....	1907
STIRTON, R. A., 514 Lester Ave., Pasadena, Calif.....	1923
STODDER, C. K., 21 Penniman Road, Brookline, Mass.....	1926
STONE, C. N., 222 Prince St., West Newton, Mass.....	1922
STONE, MRS. FRANCIS H., S. Dartmouth, Mass.....	1920
STONE, MISS HARRIET L., 203 Academy Apts., Academy Road, West- mount, Que., Can.....	1926
STONE, HARRY HERBERT, JR., Sturbridge, Mass.....	1919
STONE, ROBERT G., 311 Clinton Road, Brookline, Mass.....	1922
STONE, MRS. WITMER, 452 Church Lane, Germantown, Phila., Pa...	1920
STONER, DR. DAYTON, 603 Summit St., Iowa City, Iowa.....	1922
STONER, EMERSON A., Box 444, Benicia, Calif.....	1922
STORROW, MRS. E. C., South St., Needham, Mass.....	1925
STRABALA, LONY B., Box 129, Leetonia, Ohio.....	1925
STRATTON, MRS. GEORGE W., 518 Franklin Ave., Wilkinsburg, Pa...	1920
STRECKER, J. KERN, Baylor University, Waco, Texas.....	1925
STREET, J. FLETCHER, 1120 Locust St., Philadelphia, Pa.....	1908
STRONG, WM. A., 247 Grand Ave., San Jose, Calif.....	1924
STRUTHERS, REV. ALFRED E., 6 Cottage St., W. Brookfield, Mass...	1922
STUART, EDWARD TOBEY JR., St. David's, Pa.....	1925
*STUART, GEO. H., 3RD, 923 Clinton St., Philadelphia, Pa.....	1913
STUBBS, ARTHUR P., 14 Fiske Ave., Lynn, Mass.....	1922
STURGIS, MRS. S. D., Pine Echo Lodge, Lake Owen, Cable, Wis....	1925
STURTEVANT, EDWARD, St. George's School, Newport, R. I.....	1896
SUGDEN, ARTHUR W., 35 Concord St., West Hartford, Conn.....	1913
SULLIVAN, DR. ARTHUR G., 930 East Gorham St., Madison, Wis....	1926
SULLIVAN, WALTER F., State Forest School, Mont Alto, Pa.....	1924
SUMNER, E. L., JR., 1343 S. Palomares St., Pomona, Calif.....	1926

SUTHARD, JAMES, Rt. 1, Madisonville, Ky.....	1923
SVIHLA, ARTHUR, Morgan City, La.....	1925
SWAIN, JOHN MERTON, 15 Pleasant St., Farmington, Maine.....	1899
SWEET, MISS ORA D., 45 Logan St., Auburn, N. Y.....	1919
SWOPE, DR. EUGENE, Roosevelt Bird Sanctuary, Oyster Bay, N. Y..	1921
TABER, WM. BREWSTER, JR., Greenwood Farm, Kansas, Ill.....	1924
TALBOT, L. R., 28 Perkins St., Melrose Highlands, Mass.....	1920
TATNALL, SAMUEL A., 503 Hansberry St., Philadelphia, Pa.....	1916
TAVERNER, MISS IDA C., 45 Leonard Ave., Ottawa, Ont., Can.....	1926
TAYLOR, ALEXANDER R., Cayce, S. C.....	1907
TAYLOR, HORACE, 5 Brattle Sq., Cambridge, Mass.....	1917
TAYLOR, LEWIS WALTER, 840 Terry Place, Madison, Wis.....	1925
TAYLOR, MRS. PERRY E., Schoharie, N. Y.....	1925
TAYLOR, DR. WALTER P., 1746 E. 5th St., Tucson, Ariz.....	1916
TAYLOR, WARNER, 619 N. Frances St., Madison, Wis.....	1916
TEACHENOR, DIX, 437 W. 60th Terrace, Kansas City, Mo.....	1919
TEE-VAN, JOHN, N. Y. Zool. Park, New York, N. Y.....	1921
TERRELL, CLYDE B., 83 Monument Sq., Oshkosh, Wis.....	1920
TERRILL, LEWIS MCL., 24 Prince Arthur St., St. Lambert, Que., Can..	1907
TERRY, DR. ROBERT J., Univ. Washington, St. Louis, Mo.....	1919
THABES, MRS. J. A., 417 Holly St., Brainerd, Minn.....	1920
THOMAS, EDWARD S., 1116 Madison Ave., Columbus, Ohio.....	1922
THOMAS, JOHN G., 1226 Hayvenhurst Drive, West Hollywood, Calif..	1921
THOMAS, R. M., 298 Garry St., Winnipeg, Man., Can.....	1922
THOMPSON, J. W., 527 East First South St., Salt Lake City, Utah....	1916
THOMPSON, LOVELL, 161 Brattle St., Cambridge, Mass.....	1923
THORNE, MRS. W. V. S., 810 5th Ave., New York, N. Y.....	1925
THOWLESS, HERBERT L., 765 Broad St., Newark, N. J.....	1919
THWING, MISS GRACE E., George School, Bucks Co., Pa.....	1922
TILLISCH, MISS MARY A., 10 Bedford St. S. E., Minneapolis, Minn...	1922
TINDALL, CHAS. W., 912 N. Noland St., Independence, Mo.....	1919
TINKER, ALMERIN D., 519 Oswego St., Ann Arbor, Mich.....	1907
TITUS, W. H., Ellsworth, Maine.....	1922
TOLFREE, EDWARD R., 25 W. 45th St., New York, N. Y.....	1921
TOMLINSON, IRVING C., 137 Marlborough St., Boston, Mass.....	1920
TOWNE, DR. SOLON RODNEY, Benson Station, Route 6, Omaha, Nebr..	1919
TOWNSHEND, HENRY H., 35 Hillhouse Ave., New Haven, Conn.....	1915
TRAEGER, JOHN H., 79 W. Market St., Bethlehem, Pa.....	1926
TRAUTMAN, MILTON B., 618 S. 5th St., Columbus, Ohio.....	1924
TREGANZA, A. O., Lemon Grove, San Diego Co., Calif.....	1906
TRESCOT, ED. BOCQUET, Rt. 4, Box 221, Petaluma, Calif.....	1924
TROTTER, WILLIAM HENRY, 36 N. Front St., Philadelphia, Pa.....	1899
TRUE, GEO. L., JR., Box 216, Poultney, Vt.....	1922
TRUESDELL, JOHN F., 6310 Franklin Circle, Los Angeles, Calif.....	1918
TRUMBULL, J. H., 39 Farmington Ave., Plainville, Conn.....	1907
TUCKER, MRS. CARL, 733 Park Ave., New York, N. Y.....	1924

TUFTS, MISS MARY I., 1 Atlantic St., Lynn, Mass.	1922
TUFTS, ROBIE W., Wolfville, Nova Scotia, Can.	1919
TULLOCK, MRS. GILBERT, 3 Edgehill Road, New Haven, Conn.	1919
TURTON, MRS. JEAN M., 553 Morris Ave., Summit, N. J.	1925
TUTTLE, HENRY EMERSON, Groton School, Groton, Mass.	1909
TUTTLE, NORRIS, County Line Road, Bryn Mawr, Pa.	1926
TWITCHELL, A. H., Flat, Alaska.	1918
TYLER, JOHN G., Box 173, Fresno, Calif.	1912
TYRRELL, W. B., Children's Museum, 96 Putnam Ave., Detroit, Mich.	1922
UHLER, FRANCIS M., 29 B St., N. W., Washington, D. C.	1924
*UNDERDOWN, CHAS. ELIOT, 8216 Manor Road, Elkins Park, Pa.	1923
*UNDERDOWN, HENRY T., 401 Chestnut St., Philadelphia, Pa.	1921
UNDERWOOD, WM. LYMAN, Mass. Inst. of Tech., Cambridge, Mass.	1900
UNGLISH, W. E., 345 N. Rosanna St., Gilroy, Calif.	1924
URNER, CHARLES A., 613 Cleveland Ave., Elizabeth, N. J.	1920
VAIDEN, M. GORDON, Rosedale, Miss.	1926
VALENTINE, MISS ANNA J., Bellefonte, Pa.	1905
VAN BRUNT, MISS CARRIE, 212 Gates Ave., Brooklyn, N. Y.	1925
VAN HYNING, DR. THOMPSON, State Museum, Univ. Florida, Gainesville, Fla.	1926
VAN NAME, WILLARD G., Am. Mus. Nat. Hist., New York, N. Y.	1900
VAN ROSSEM, ADRIAAN J., 514 Lester Ave., Pasadena, Calif.	1923
VAN SCHAICK, DR. JOHN JR., Alden Park Manor, Longwood, Brookline, Mass.	1926
VAN TYNE, CLAUDE H. II, 1942 Cambridge Road, Ann Arbor, Mich.	1925
VAN TYNE, J., 1942 Cambridge Road, Ann Arbor, Mich.	1922
VARLEY, J. A., 99 Glencairn Ave., Toronto, Ont., Can.	1926
VETTER, DR. CHARLES, 67 West 12th St., New York, N. Y.	1898
VON BLOEKER, JOHN C., JR., 109 University Ave., San Diego, Calif.	1926
VON FUEHRER, OTTMAR F., Florida State Museum, Gainesville, Fla.	1925
VON LINGERKE, JUSTUS, 257 Highland Ave., Orange, N. J.	1907
VORHIES, DR. CHAS. T., Univ. of Ariz., Tucson, Ariz.	1918
VOUGHT, EARLE G., Rt. 2, Hopewood, Northumberland, Pa.	1924
WALCOTT, CHAS. F., 77 Sparks St., Cambridge, Mass.	1923
*WALCOTT, FREDERICK C., Norfolk, Conn.	1921
WALCOTT, JUDGE ROBERT, 152 Brattle St., Cambridge, Mass.	1924
WALKER, ALEX, Route A, Tillamook, Ore.	1925
WALKER, ERNEST P., Juneau, Alaska.	1918
WALKER, GEO. R., R. D. 3, Murray, Utah.	1909
WALKER, LEWIS W., Douglas Manor, Douglaston, L. I., N. Y.	1925
WALKER, ROLAND, 171 Forest St., Oberlin, Ohio.	1924
WALLACE, CHAS. R., 69 Columbus Ave., Delaware, Ohio.	1913
WALLIS, JOSIAH K., 132 Holder Hall, Princeton, N. J.	1926
WALP, RUSSELL LEE, Beard's Lane, Route 3, Youngstown, Ohio.	1925
WALSH, LESTER L., 11 Walthery Ave., Ridgewood, N. J.	1925
WALTER, DR. HERBERT E., 67 Oriole Ave., Providence, R. I.	1901

WALTERS, FRANK, 520 Grand Central Palace, New York, N. Y.	1902
WARD, FRANK H., 18 Grove Place, Rochester, N. Y.	1908
WARD, HENRY L., Kent Scientific Museum, Grand Rapids, Mich.	1906
WARREN, GEO. C., 253 Kent St., Brookline, Mass.	1924
WARTHIN, ALFRED SCOTT, JR., 1020 Feron Rd., Ann Arbor, Mich.	1922
WATSON, C. G., 201 Ridout St. S., London, Ont., Can.	1919
WEBER, J. A., 151 Grand Ave., Leonia, N. J.	1907
WEBSTER, E. B., Port Angeles, Wash.	1923
WEBSTER, DR. GEORGE A., Lawton, Hall Brattleboro, Vt.	1916
WEBSTER, MRS. JENNIE E. B., 468 4th Ave., New York, N. Y.	1917
WEED, CLARENCE M., State Normal School, Lowell, Mass.	1924
WEISEMAN, T. WALTER, 226 Beaver Road, Emsworth, Pittb'gh, Pa.	1916
WEISER, CHARLES S., 105 W. Springettsbury Ave., York, Pa.	1916
WELDON, MRS. JOHN H., Masonville Road, Loveland, Colo.	1926
*WELLING, YENS M., Rt. 4, Anderson, Ind.	1924
*WELLMAN, GORDON B., 17 Midland R'd, Wellesley, Mass.	1908
WELLS, MISS CAROLINE, 310 East Cedar St., Missoula, Mont.	1920
WELLS, MISS HELEN M., 99 Putnam Ave., Brooklyn, N. Y.	1925
WELLS, HERBERT R., Elks Building, Rapid City, S. Dak.	1922
WESTON, FRANCIS M., U. S. Naval Air Station, Pensacola, Fla.	1925
WEYDEMEYER, WINTON, Libby, Mont.	1925
WEYGANDT, DR. CORNELIUS, 6635 Wissahickon Ave., Philadelphia, Pa.	1907
WEYL, EDWARD S., 6506 Lincoln Drive, Mt. Airy, Philadelphia, Pa.	1921
*WHARTON, WILLIAM P., Groton, Mass.	1907
WHEELER, REV. HARRY E., Mus. Univ. Ala., University, Ala.	1923
WHITAKER, INNESS, 490 West End Ave., New York, N. Y.	1926
WHITAKER, J. D., 683 Atlantic Ave., Boston, Mass.	1924
WHITE, ALFRED FISHER, 1745 Waverley St., Palo Alto, Calif.	1926
WHITE, DONALD, 56 Jordan Ave., Wakefield, Mass.	1920
WHITE, GEORGE R., 185 Wurtemberg St., Ottawa, Ont., Canada.	1903
*WHITE, GEO. WHITNEY, Nat. Metropolitan Bank, Washington, D. C.	1924
WHITE, W. A., 158 Columbia Heights, Brooklyn, N. Y.	1902
WHITE, W. FOSTER, 126 Liberty St., New York, N. Y.	1923
WHITING, HARRY A., Walpole, Mass.	1923
WHITNEY, PROF. ALVIN G., State College Forestry, Syracuse, N. Y.	1925
WHITNEY, HOWARD, 45 East St., Hartford, Conn.	1921
WHITTLE, CHARLES L., 50 Congress St., Boston, Mass.	1916
WHITTLE, MRS. H. G., 50 Congress St., Boston, Mass.	1904
WICKS, MRS. JUDSON L., 1911 Pillsbury Ave., Minneapolis, Minn.	1922
WIEGMANN, DR. WILLIAM HENRY, 436 E. 5th St., New York, N. Y.	1916
*WIGGLESWORTH, DR. EDW., Boston Soc. Nat. Hist., Boston, Mass.	1920
WILBUR, ADDISON P., 60 Gibson St., Canandaigua, N. Y.	1895
WILCOX, T. FERDINAND, 118 E. 54th St., New York, N. Y.	1895
WILDMAN, EDWARD E., 4331 Osage Ave., Philadelphia, Pa.	1923
WILEY, MISS FARIDA A., Cor. Prospect Ave. & Willow St., Douglas- ton, L. I., N. Y.	1925

WILLARD, BERTEL G., 51 Fresh Pond Parkway, Cambridge, Mass.	1906
WILLARD, FRANK C., Farmingdale, N. Y.	1909
WILLARD, OSCAR T., 5343 Blackston Ave., Chicago, Ill.	1919
WILLCOX, DR. M. A., 63 Oakwood Road, Newtonville 60, Mass.	1913
WILLIAMS, A. B. JR., 2855 Scarborough Rd., Cleveland Heights, Ohio.	1924
WILLIAMS, ELLISON A., 27 Limehouse St., Charleston, S. C.	1923
WILLIAMS, LAIDLAW O., Box 665, Carmel, Calif.	1919
WILLIAMS, LEWIS B., 706 Citizens Bldg., Cleveland, Ohio.	1920
WILLIAMS, ROBERT S., Botanical Gardens, New York, N. Y.	1888
WILLIAMS, ROLAND, 207 Pine St., Wooster, Ohio.	1925
WILLIAMSON, E. B., Bluffton, Ind.	1900
WILLIS, E. J., Riceville, Iowa.	1923
WILLIS, MISS GERTRUDE, Swarthmore, Pa.	1926
WILLIS, WARREN J., Union C & C Research Lab., Thompson Ave. & Manley St., Long Island City, N. Y.	1923
WILSON, MRS. ETTA S., 9077 Clarendon Ave., Detroit, Mich.	1917
WILSON, DR. FRANK NOTMAN, 804 Lawrence St., Ann Arbor, Mich.	1922
WILSON, GORDON, 1434 Chestnut St., Bowling Green, Ky.	1919
WILSON, HAROLD C., Ephraim, Wis.	1924
WINANT, ALBERT, 194 Maple Ave., Great Barrington, Mass.	1922
WINECOFF, DR. THOMAS E., Box 24, Riverton, Wyo.	1926
WING, DEWITT C., 5626 Dorchester Ave., Hyde Park, Chicago, Ill.	1913
WING, GEORGE STUART, Rt. 3, Jackson, Michigan.	1924
WINGARD, TOD ALBERT, 1173 Say Ave., Columbus, Ohio.	1918
WINTER, DWIGHT, Center and Negley Aves., Pittsburgh, Pa.	1922
WOLFE, LIEUT. L. R., Ft. Douglas, Utah.	1922
WOOD, ALLEN H., JR., 178 Tremont St., Boston, Mass.	1923
WOOD, DR. CLIFFORD H., 656 N. Vista Bonita, Glendora, Calif.	1924
WOOD, DR. GEORGE B., N. E. Corner 20th & Chestnut Sts., Philadelphia, Pa.	1916
WOODS, ROBERT S., Box 356, Azusa, Los Angeles Co., Calif.	1926
WOODWARD, DR. LEMUEL F., State St., Worcester, Mass.	1917
WOOLMAN, MISS ANNA, 21 N. Highland Ave., Lansdowne, Pa.	1920
WOOLMAN, EDWARD, Box 128, Haverford, Pa.	1925
WOOLSTON, WM. J., W. Chestnut Ave., Chestnut Hill, Philadelphia, Pa.	1925
WORCESTER, MRS. ALFRED J., 314 Bacon St., Waltham, Mass.	1908
WRIGHT, FRANK S., 14 Cayuga St., Auburn, N. Y.	1917
WRIGHT, MISS MARY A., 55 Ware Hall, Cambridge, Mass.	1920
WYMAN, LUTHER E., 3965 Dalton Ave., Los Angeles, Calif.	1907
WYTHE, MISS MARGARET W., Mus. Vert. Zool., Univ. Calif., Berkeley, Calif.	1924
YEATLER, RALPH E., 3262 Lothrop Ave., Detroit, Mich.	1926
YODER, WM. JR., 4510 N. Carlisle St., Philadelphia, Pa.	1923
YOUNG, REV. CHAS. JOHN, Carrying Place P. O., Ont., Can.	1918
YOUNG, JOHN P., Ithaca, N. Y.	1911

- YOUNG, WALLACE P., 203 Fern Ave., Toronto, Ont., Can.....1925
ZELENY, LAWRENCE, 613 East River Road, Minneapolis, Minn....1924
ZERLANG, LAWRENCE, 524 W. Hawthorne St., Eureka, Calif.....1925

THE AUK

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Edited by Dr. Witmer Stone

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ACADEMY OF NATURAL SCIENCES,

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MEETINGS OF THE A. O. U.

Since its organization in 1883 the American Ornithologists' Union has held one special and 44 annual meetings.

Meeting	Date	Place	Fellows Present	Total Membership
1	1883, Sept. 26-28	1st New York	21	23
2	1884, Sept. 30-Oct. 2	2d New York	16	143
3	1885, Nov. 17-18	3d New York	16	201
4	1886, Nov. 16-18	1st Washington	20	251
5	1887, Oct. 11-13	1st Boston	17	284
6	1888, Nov. 13-15	2d Washington	20	298
7	1889, Nov. 12-15	4th New York	20	400
8	1890, Nov. 18-20	3d Washington	20	465
9	1891, Nov. 17-19	5th New York	14	493
10	1892, Nov. 15-17	4th Washington	20	557
11	1893, Nov. 20-23	2d Cambridge	17	582
12	1894, Nov. 12-15	6th New York	15	616
13	1895, Nov. 11-14	5th Washington	19	667
14	1896, Nov. 9-12	3d Cambridge	14	673
15	1897, Nov. 8-11	7th New York	18	679
16	1898, Nov. 14-17	6th Washington	21	695
17	1899, Nov. 13-16	1st Philadelphia	16	744
18	1900, Nov. 12-15	4th Cambridge	19	748
19	1901, Nov. 11-14	8th New York	18	738
20	1902, Nov. 17-20	7th Washington	25	753
20a	1903, May 15-16	1st San Francisco	7	—
21	1903, Nov. 16-19	2d Philadelphia	19	775
22	1904, Nov. 28-Dec. 1	5th Cambridge	17	808
23	1905, Nov. 13-16	9th New York	17	860
24	1906, Nov. 12-15	8th Washington	24	750
25	1907, Dec. 9-12	3d Philadelphia	20	850
26	1908, Nov. 16-19	6th Cambridge	17	888
27	1909, Dec. 6-9	10th New York	19	866
28	1910, Nov. 14-17	9th Washington	23	897
29	1911, Nov. 13-16	4th Philadelphia	18	887
30	1912, Nov. 11-14	7th Cambridge	18	929
31	1913, Nov. 10-13	11th New York	28	992
32	1914, Apr. 6-9	10th Washington	27	1101
33	1915, May 17-20	2d San Francisco	11	1156
34	1916, Nov. 13-16	5th Philadelphia	26	830
35	1917, Nov. 12-15	8th Cambridge	21	891
36	1918, Nov. 11	12th New York	14	953
37	1919, Nov. 10-13	13th New York	28	1024
38	1920, Nov. 8-11	11th Washington	25	1142
39	1921, Nov. 7-10	6th Philadelphia	25	1351
40	1922, Oct. 23-27	1st Chicago	24	1457
41	1923, Oct. 8-12	9th Cambridge	25	1652
42	1924, Nov. 10-13	1st Pittsburgh	26	1637
43	1925, Nov. 9-12	14th New York	30	1705
44	1926, Oct. 11-17	1st. Ottawa	22	1815

The next regular meeting—the 45th Stated—will be held at Washington, D.C., November 14-17, 1927.

